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July–September, 1964

AUDIO VISUAL EDUCATION

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ATIONAL COUNCIL OF EDUCATIONAL RESEARCH & TRAINING

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AUDIO-VISUAL EDUCATION is published quarterly.

AUDIO-VISUAL EDUCATION aims at fostering interest in the use of audio-visual techniques in education among teachers and social education workers.

It provides a forum for teachers and social education workers to discuss and share their day-to-day experiences in this particular field.

It contains stimulating articles (English and Hindi) on various aspects of audio-visual education and is profusely illustrated. It gives the latest information about the Central Film Library.

It contains a useful feature entitled "How to Make it Yourself".

Contributions for consideration are invited and, if published, will be paid for at our usual rates.

AUDIO-VISUAL EDUCATION

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OUR COVER :

Photograph of a diorama prepared at the N.I.A.V.E. A full 8-page feature on Making Dioramas may be seen elsewhere in the journal.

This Diorama on cover represents a simple three-dimensional representation of various aspects of nature in Kashmir. The soft stream, tall vegation, flat plateau and the background of snowline provide a dramatic setting for the Kashmiri belle resting on her oars.

Articles (both in English and Hindi) of interest to Audio-Visual Education for first publication, are invited. They should be typed on one side of the page only and should not exceed 2,500 words. Contributions should be addressed to *The Editor, Audio-Visual Education, National Institute of Audio-Visual Education, National Council of Educational Research and Training, Indraprastha Estate, Ring Road, New Delhi-1.* Authors will have to obtain the prior permission of the Institute if they wish to republish articles published in this journal.

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G. S. Baderia

SCHOOL TELEVISION —ITS SCOPE AND FUTURE IN INDIA

The Problem

Indian schools today face a three directional problem in the field of secondary education—the problem of in creased enrolment, the demand for more quality in education and the shortage of equipment and equipped teachers. The emergence of a democratic republic in India, the technological advancement and the rapid growth of schools ; all these factors have only brought out these problems in bold relief. Educational administrators and working educators are therefore busy finding solutions to these vexed problems. A study of these problems has led them to a study of the learning procedures. They have found out that learning faster and learning better depends upon how much we can involve the students in it. Researches have shown that greater the involvement of the children in the lessons, the better is the learning imparted. A mere lecturer is not able to command the attention of his audience as much as one who also demonstrates. The use of audio-visual devices is therefore the answer for better and faster learning. The use of charts, still pictures, diagrams, models, films, filmstrips and radio has therefore considerably increased during the past few decades.

The latest addition to this list of audio-visual aids is "Television". Television is an "Instantaneous Communication Medium" which combines sight, sound and motion. It is a medium which can make use of all the audio-visual aids mentioned above. It is therefore an all-inclusive tool.

Television and the Educational Scene

Television as an educational tool was practically unheard of about 15 years ago. It was then considered only as one more entertainment medium. The fact however that it brings to the viewer events as they happen and that the world's discoveries, its dramas, its entertainment as learning all come to the viewer as if in a front row seat prompted educationists to probe into its suitability as an educational tool. Researches have since established that when television is wisely used it can and does help the teacher do a more effective job.

During the past ten years educational institutions in other countries of the world have been discussing and discovering that television can make a real contribution to the educational programme. Dr. Henry R. Cassirer, Head of Radio and Television Section, UNESCO pin-points the role of television in the classroom when he says: "The unity and interdependence of man's experience and creation can be brought out more forcefully on television than in classroom where the teacher inevitably is limited in the scope of his knowledge and the manner of his personal approach. Here television can perform a task which is meaningful to our age.".

Mr. Henri Dieuzeide, Head of Radio and Television Division National Pedagogical Institute, France nearly speaks in the same strain when he says :

"School television can be looked upon as a means of instilling new life and effectiveness in teaching methods. It may well provide the teaching profession with new possibilities of direct observation, new sources of information, world (or even universal) eye-witness experience, and better authentication (or even visual dramatisation) of knowledge.

In addition to collective teaching in the traditional form, television may enable single pupils (or isolated groups) to have the benefit of outstanding

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teachers with more personal contact than can come from correspondence courses. Television can also provide teaching matter which is more quickly assimilated and more easily memorised because it is visual.

That the educational policy makers of developing countries have been quick to realise the potentialities of television will be clear from the following resolution adopted at the meeting of Education Ministers of Asian States held in Tokyo in April 1962.

"In planning the future of our educational systems and carrying the heavy financial burden of our expanding high quality educational programme, we have given particular attention to the technology of education. We have tried to view education as an "industry" and have made decisions to eliminate the causes of its wastes and to use in all appropriate ways the new techniques of teaching and learning, ranging from a filmstrip and the modernized text-book to radio and television programmes, which may soon be beamed to us from artificial satellites. Such developments will, we believe, also contribute to the maintenance and continuous improvement of the quality of our educational system—which at least at the secondary and higher levels, must achieve and maintain standards of the highest quality"

But mere professions of these potentialities of school television do not solve the problem. There will always be resistance to TV as to any new device to be introdnced in education.

Therefore we must be clear about :

What can television do that cannot be accomplished as effectively and efficiently as by other means ?

What is the unique role of TV in the classroom ?

What is the nature of outstanding programmes whose value is respected and recognised by any teacher whatever his professional qualifications ?

What is it that is new and enriching about television whatever the character and quality of traditional education ?

Only clear answers to these questions may influence the acceptance of television among the teachers.

Keeping these points in view let us examine the role of television in the Indian educational scene. To do this, we must again revert back to a discussion of the problems facing education in India.

We, as a democracy, are pledged to provide free and compulsory education upto the age of fourteen to all our children. We are further pledged to provide equality of opportunity to all. With the limited resources at our disposal how far have we moved in that direction ? Is the pace of our progress commensurate with the developments in other countries of the world ? Are there sufficient number of schools to cater for children upto the age of fourteen in the rural areas ? Is there adequate provision of all types of courses in the schools that exist there ? Do we have the professionally qualified teachers needed for teaching technical courses, natural sciences, foreign languages, art, music and crafts in all our schools? Can we employ such geniuses as school masters in numbers needed in individnal schools that will bridge the gap between present classroom teaching and the modern world and prepare students for modern living ?

These problems essentially involve finances and have to be viewed from a national view-point rather than the individual angle. Television with its inherent character of instantaneous mass communication can provide solutions to many of these problems. That these are not mere theoretical possibilities will be clear from an account of "Telescoula" in Italy.

"In many of the smaller towns and communities in Italy, no middle schools are available. Children are physically unable to continue their education after attending primary school unless they leave home and move into urban centres. Italian television therefore decided, in 1958, to cooperate with the Ministry of Education in launching "Telescoula" (Tele-school) which consists of the complete course of instruction normally given in middle schools. Telescoula has been the most extensive project to date which couples television with the teaching by correspondence".

Telescoula in Italy is only an emergency solution to prevent new school generations from augmenting the mass of unemployed and uneducated youngsters and is not intended to supplant the establishment of government schools, but this is simultaneously an example of what television could do in such an emergency which is so wide-spread in all developing countries. Even when there are schools, they are often under-staffed and the staff is under qualified. *The task of mass-education in all developing countries*

is so collosal that attracting the right type of qualified teachers within the resources made available for education is and may remain for years to come, practically impossible of accomplishment. But thanks again to television, highly skilled teachers can reach every part of the country, however remote from urban centres, with lessons which include a far greater range of illustrations and examples than normal classroom courses.

Besides, the twentieth century may be characterised as an age of unprecedented knowledge—explosion in every sphere of human activity. The teacher who took his education a decade ago, if left alone is no longer able to meet the challenging requirements of present day education.

The emergence of the "Textbook" on the teaching scene was only an attempt to remedy this situation but even the textbook today is stale by the time it comes out of press. The concept of a "teaching team" is therefore being accepted more and more widely. The television teacher having facilities of consultations with experts in the field, access to films, filmstrips, well illustrated reference material and above all with the availability of adequate time for planning, soon makes his impact felt and after the feeling of initial resistance is worn off the classroom teacher begins to look upon the television teacher as a colleague to be respected.

Television has the capacity to visualize and compress, within a short span of time, phenomena that are otherwise occurring over a number of years making it normally difficult to see the inter-relationship between different aspects of the process. For example, it would be immensely difficult for a classroom teacher to relate the various forms of energy to solar energy than for the teacher who uses "animated charts" and gives a touch of reality to the contrived experience. Or it may be difficult for a classroom teacher to trace the causes of an affluent society in the "industrial policy" of the country than the TV teacher who could with the help of adequate visuals (films, filmstrips etc.) connect the growth step by step, beginning from the implementatiou of the industrial policy resolution.

Similarly the various phenomena going on silently that cannot be perceived viz. the carbon-dioxide cycle, the fixation of nitrogen, the function of food etc. can be dramatized on the TV screen creating visual imagery on the mind facilitating understanding and retention.

Television may play an important role in science teaching in so far as it will enable progress to be made

(a) By presenting practical applications of scientific ideas and studies—enabling pupils to become familiar with the work of laboratories, factories and workshops.

(b) By offering programmes which draw profuse illustrations from different branches of science thus developing a broader perspective for science.

(c) By bringing into the classroom the personal testimony of research workers and scientists developing appreciation of science and value of cooperation.

(d) By providing the teacher with presentations and means of approach specially suited to a given mental level.

Similarly in teaching foreign languages, television may have the following additional advantages :

1. The services of a highly qualified teacher can be made available who has a perfect accent. He can reach a large number of classes where qualified language teachers (in the strictest sense) are missing.
2. Television can create an atmosphere of the country in which the language is spoken, through films, dramatizations, objects etc.
3. The television image permits concentration on essentials. For example, in teaching words used in buying and selling, the camera could concentrate only on two pairs of hands, the object of sale and the payment of money.
4. Television can bring in the teaching situation, the prestige of dramatization and theatre so as to awaken or encourage the taste felt by adolescents in the subjects.
5. The immediacy and intimacy of Television gives children a direct sense of participation and imitation. They watch mouth formations and listen to intonations with lively interest.

(Contd. on Page 7)

Shewak Bhojraj

EDUCATIONAL FILMS AND SEPARATE CINEMA HOUSES FOR CHILDREN

The child's world is different from that of the grown-ups. Childhood fears and fancies, its desires and longings, its thoughts and ideas, even its dreams and reveries are essentially different from those of adolescence or manhood. Modern child psychology and educational theory and practice have unquestionably established the fact that the child deserves special consideration and treatment to enable him to develop his individuality and realise his destiny as a member of society.

However, most of our institutions—educational, social and cultural—take no or little account of the child. Take, for instance, one of our many recreational institutions, the cinema. The present-day Indian cinema caters to the tastes, fancies and needs of the grown-ups alone. Romance, thrill and excitement are demanded by the bored adult, and he finds them in themes of unrequitted love, hate and revenge.

Now, the child accompanies his parents or elders to the ordinary cinemas and sees the pictures. No wonder that he receives strange impressions. Possibly he does not understand certain situations presented on the silver screen. That is indeed fortunate. But he cannot help, or escape, seeking a hundred ways of "making love", novel ways of "committing crimes" and other thrilling scenes, which cannot but influence his impressionable mind.

He returns home, dazed and excited, his mind surcharged with feelings never experienced before, the little soul on a rack. He tries in imagination to live the scenes he has witnessed, to act the deeds he has seen others do, to be a hero or a villian, to kill the dragon and to save and possess the one person or thing in the world he must possess.

If, as a result of frequent visits to the existing "picture palaces", he sleeps badly, experiences nightmares, wakes up late in the morning, feels listless the whole day, loses interest in his lessons, grows peevish and petulant, takes on airs or adopts attitude of swaggering, who can blame him ? Such a result may be ascribed to the quality of the pictures, but parents, educationists and social reformers too cannot claim exemption from sharing part of the blame.

EFFECTS OF ORDINARY PICTURES

Have our social leaders and educational experts paid heed to the delirious effects of ordinary pictures on the sensitive minds of children ? Have they made a proper study of the undesirable influences that the so-called thrillers are apt to produce on the future citizens ? We cannot but answer these questions in the negative for the few pictures that have recently been prepared specially for children are surely not quite satisfactory !

We must confess a criminal neglect of one of the most important things of life, viz., the proper arrangements for a good supply of sound recreational material for our children. We have been feeding our children on meat that, in reality, is poison for them. We have, in fact, not only denied recreational fare to them but, on the other hand, served to them unwholesome, unhygienic entertainment, though we boast that we live for children.

Think of the thousands of children in big cities like Bombay, Calcutta, Delhi and Madras, visiting the ordinary cinema shows and, strangely, though unfortunately, not a single picture house exists throughout the length and breadth of India which caters particularly to the peculiar needs and tastes of children. Though big cities are teeming with child population, there are no picture houses exclusively meant for young boys and girls.

Could it not be possible to establish exclusively separate cinema houses for children ? Could it not be run successfully in each of these localities ? Then, is it not merely separate cinema houses for children that we need. The films shown must, of necessity, be different, as ordinary films have already been shown to have a baneful effect on impressionable children. What sort of films should be made for children ?

There may be two kinds of films : educational and recreational. The former will aim at general education, and will include such subjects as disease, food, milk, cleanliness, the working of factories, manufacture of cloth and other commodities ; the achievement of engineering feats, etc. The latter will aim purely at entertainment and amusement, and will be full of sunshine, laughter, stunts, and healthy wholesome, innocent fun and frolic, and animated cartoons which have an immense appeal to the child mind.

A TEACHING AIDS FOR SCIENTISTS

Film as a teaching aid has a special interest for scientists too. It has been developed by scientific workers, and it must depend upon their researches for its continued improvement. For the exposition of scientific ideas and processes, it is a particularly effective medium being capable of exploring a wide variety of phenomena and of expressing abstract concepts in visual terms. The course could have an enormous scope in the scientific education of children. One of the subjects in which children would show interest is Biology.

To raise the output of films of undisputed educational merit, and to ensure the production of the widest possible range of films, sponsorship of film production is recommended. This would for the first time enable the small independent production units to concentrate on teaching films, without in any way preventing the larger production companies from coming within a scheme of sponsorship or from making, selling and hiring films on their own account. The Children's Film Society was formed with the intention of making films of "educational and entertainment" value, but this has been just the "crossing of the frontier" rather than exactly an advance in that direction.

Lately, the processes of education have been passing more and more from academic hands into the control of interests concerned with the practice rather than the theory of modern civilisation. The world citizen is today more influenced by the press, the radio, the film and the advertising hoarding than by what is to be learned in the classroom. Yet the modern world needs a knowledgeable citizenry which is kept so by the most efficient methods available.

Indeed, education is what may be described in functional terms, education which is not incidental but necessary to some function of the community, education in the interests of civic health, of efficient transport, of better living ; it has a continuing part to play, parallel to the work of the nation's schools and universities, however efficient these latter may eventually become. The problem of the moment is not so much to ensure that "functional" education shall have its place as to consider how it may be prevented from ousting its ancient academic predecessor.

How has such a problem arisen ? Governmental and commercial organisations, exploring likely avenues of presenting to the public their messages—commercial, instructional or morale building have found themselves transported into the field of education equipped with sufficient finance to use the most modern instruments. They have found themselves educationists—not by choice but by accident—made powerful by the tools at their disposal.

USE OF THE FILM IN EDUCATION

Consider, again, the film. The idea of using it in education is not quite new. For many years educational workers in most countries have been campaigning for the addition of the cinema projector to the furnishings of the school. But neither the projectors nor the vast libraries of films needed to feed them are cheap accessories.

There were other interests however, with messages of an educational nature which could be carried by Government film departments faced with the need to disseminate propaganda and instruction, industrial organisations with staff to train, and customers to inform and instruct. Thus the Government's documentary films began with the Marketing Board and moved on through the Post Office and chemical industries to propaganda for the Five-Year Plans. And those few schools that had projectors found that from these somewhat surprising sources of sponsorship were coming background educational films which met academic tests to a certain extent.

The utilisation of such "functional" sponsorship was at best a method of obtaining films to fit a curriculum; the possibility of covering a syllabus thoroughly was negligibly small. There were also a few classroom films made as a commercial speculation, but where were the projectors? The market, therefore, was uneconomic. Nonetheless, the Ministry of Information and Broadcasting has of late been trying to stimulate, inform and instruct the millions of our citizens through this source. These millions are reached through the factories in the cities, panchayats in the villages, youth clubs and civil defence posts, etc.—audiences to whom are presented not the cheap entertainment films but films which give them fresh knowledge.

The phenomenon has provided educationists with a serious food for thought. Results have proved the power of the medium, and it is clear that the inclusion of the film (together with other visual aids) among the standard school equipment cannot be long delayed. The undesirability of leaving the field to be monopolized by the various existing sponsors is sufficiently clear; basic education cannot safely become a by-product of other social purposes.

There can be no doubt that film as an educational medium has a distinctive and important role to play, although even in the West, films are still not extensively used in education. The use of films in education has been engaging the interest of growing number of educationists and scientists here in India also, but hardly any attention of the film-producers. There are so many intelligent persons among them: Could they not undertake the experiment?

School Television—Its Scope and Future in India.

(Contd. from Page 4)

Another great advantage of television teaching that has been experienced elsewhere as also in India is the in-service training of teachers. All educational television designed for use in classrooms, even though it is primarily aimed at students, has a definite value for the in-service training of teachers. There is testimony to the effect that outstanding programmes, presentations by able teachers and demonstrations of equipment leave a lasting impact upon the classroom teacher, whose own teaching improves, thanks to the example seen on television.

From what has been stated above, it is clear that school television has potentialities of providing solutions to many of the problems facing India and the use of this medium is likely to increase as time passes.

It must however be understood that television is no substitute for face-to-face teaching situation and no attempt should be made to supplant the classroom teacher. Our own experiments under Delhi School TV Project confirm the need and effectiveness of follow-up discussions by classroom teachers.

Finally, in all television production, we must be alive to the potentialities of the medium and must exploit them to the fullest extent. If television is reduced merely to following traditional teaching methods, becoming a vehicle for out-dated techniques, its very possibilities may be "killed in the shell" and a new form of teaching, which is still feeling its way, may be crippled.

References

(1) "Television Teaching Today" —by Henry R. Cassirer.

(2) "Teaching Through Television"—OEEC Publication.

(3) "Report of the meeting of Ministers of Education of Asian member states participating in the Karachi Plan"—UNESCO

(4) "Constitution of India"—Preamble and Directive Principles of State Policy.

(5) "Television Teaching Today".

R.N. Saksena

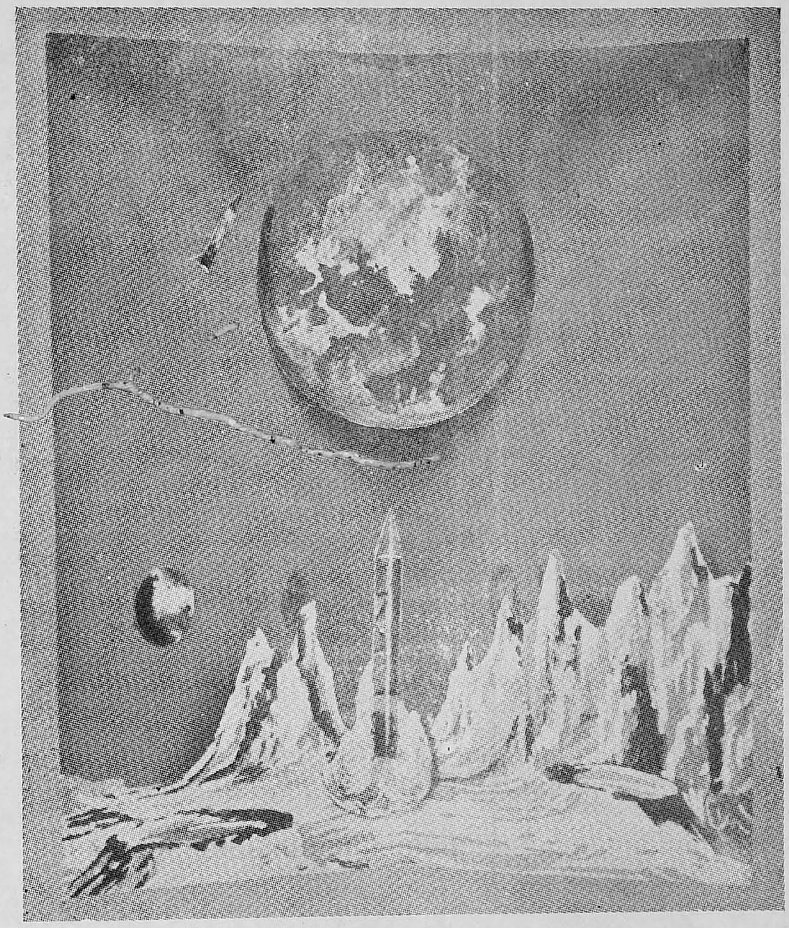
PROBLEM – OF SHORTAGE OF AUDIO-VISUAL AIDS IN SCHOOLS AND SOME SUGGESTIONS TO GET OVER IT

IT is no secret that most of the schools in our country are ill equipped in teaching aids. Let us take the case of teaching geography. Most of the schools can just keep a set of continental maps. They can hardly afford to have distribution maps continent-wise. They do not have world maps of the various types for the study of geographical elements for the world as a whole. There are various types of globes, but most of the institutions can only afford one or two types of globes. Even the training institutions at various levels hardly have adequate equipment to show to the pupil- teachers, what things there are in the market whichcould be used to make instruction living. Such useful aids are orray, demonstration equipment for map projection, plane table, sextant, chronometer, telescope, siesmometer, and meteorological instrument—which are the fundar mental instruments for the study of geography—are altogether wanting. In the absence of these instruments, practical work in geography cannot be done and curricula have to be drawn limiting the study to what is possible with book reading or with the help of a few maps and charts.

To meet this shortage, the approach has been to train the teachers in preparing suitable aids or preparing improvised aids. But a sample survey will reveal how ineffective this approach has been. There are a number of reasons for this. Prepara- tion of improvised aids among teachers requires an aptitudefor craft work and since teachers are not recruited on the basis of this aptitude, few persons with necessary aptitudes happen to get into the teaching profession. There will be some educationists who will insist that aptitude has little to do with the preparation of improvised aids, and that any one can learn making them, provided he or she has the will to learn. (Even if this is accepted it will be no revelation that will to do more than what will allow the teacher's service to continue, hardly exists in the majority in the profession).

(Contd. on Page 17)

S.L. Ahluwalia



MAKING SIMPLE DIORAMAS

(Diorama No. 1)

With a dramatic vividness, the rocket seems to emerge from the moon on its backward journey towards the earth. Only a working model could have captured this situation. But this folding diorama incorporate the basic elements and serves almost as effectively as a model.

A diorama is a miniature three-dimensional exhibit using small objects, modelled figures and backgrounds in perspective, against an appropriate setting. The object need not be done to scale, the difference in sizes is exaggerated from front to back in order to create an illusion of depth and distance. Sometimes, artificial lighting at the back or at some significant points enhances the vividness and realism of the dioramic display.

Dioramas are an essential visual aid where learning situations involve the third dimension. They make experiences more concrete, tangible and memorable. The situation depicted through a diorama becomes more real with the basic elements of depth and substance and thus it leads to the development of nearly complete sensory experience.

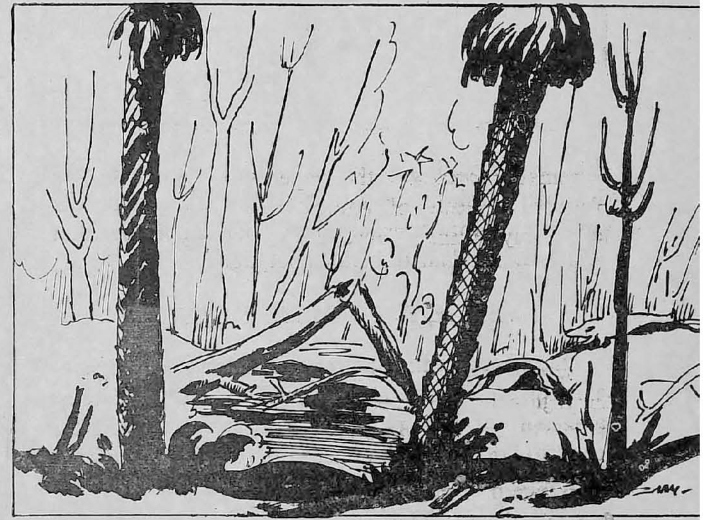
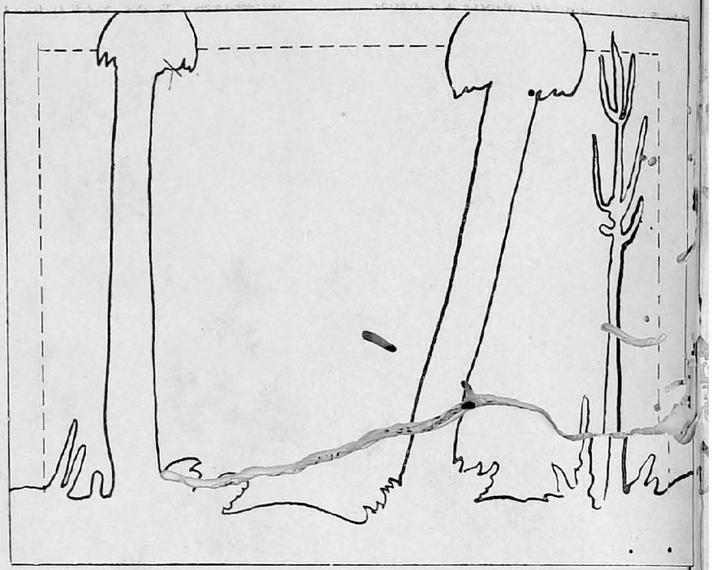


Fig 1.1

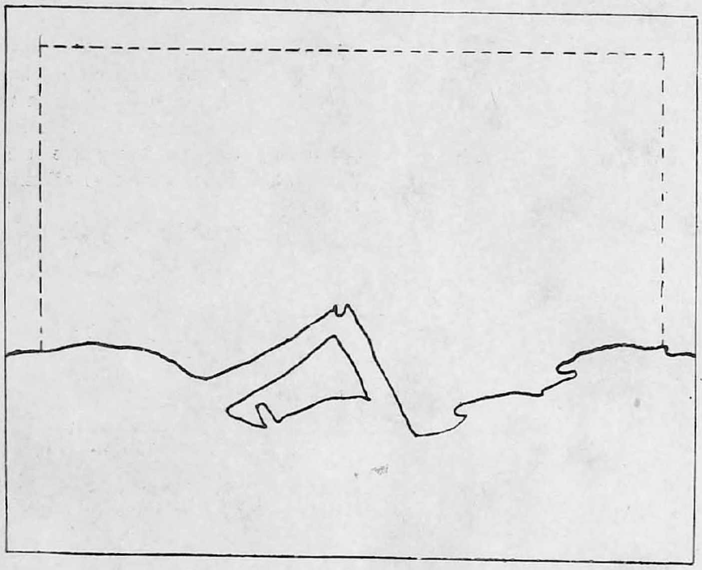
Sketch of a vertical-folding diorama depicting the picture of a geological era when the earth was covered with dense vegetation.

Dioramas depict distant places, historical periods, scenes from a story, or an imaginary situation, etc. In public exhibitions, dioramic displays are effectively used to show industrial, natural and man-made developments, mock-ups of machines, stages of a process, etc. Thus dioramas can be improvised to serve as teaching aids for many a concept in Social Studies, General Science, Languages, and other specific areas of school curriculum.

Dioramas can be easily developed as a purposeful activity in the class with the cooperation of a group of pupils, from easily available materials. Cardboard dioramas do the job quite effectively. You require only sheets of cardboard, poster colours, brushes, a small stapling tool, etc. for these. Cardboard dioramas according to the experiments done at the National Insitute of Audio Visual Education, can take many forms. There are four simple varieties which are explained, below analytically.

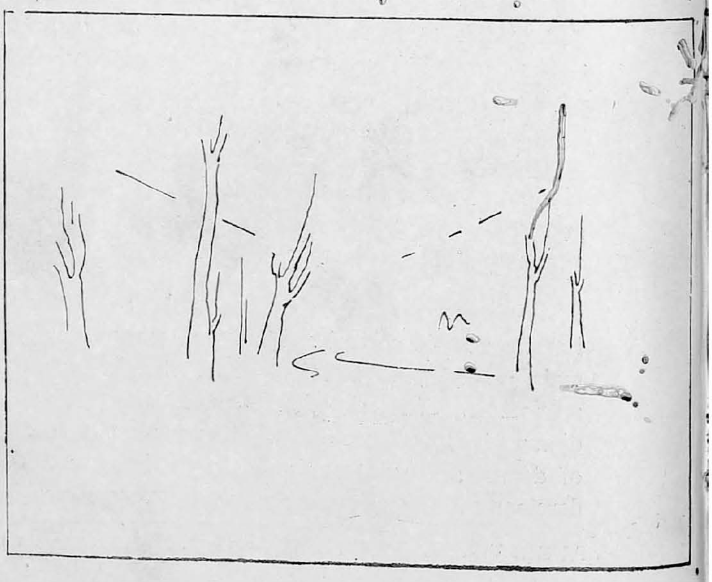


↑ *Fig. 1.2 shows the fore-ground.*



←*Fig. 1.3 shows the middle-ground.*

↓ *Fig 1.4 shows the back-ground.*



VERTICAL FOLDING DIORAMA

Decide upon the theme or situation to be depicted through a diorama. Identify an illustration or develop a sketch for this purpose. You have to add the elements of the third dimension to this through the technique of a diorama. In figure 1.1, you have the picture of a geological era when the earth was covered with dense vegetation.

As you view this picture from a distance and imagine a depth in it, you develop a "depth of focus" like viewing through the lens of a photographic camera. Differentiate three or four basic parallel and vertical block of this illustration. Identify its different parts that coincide with these blocks. Generally, three such blocks or layers are adequate. You can split up this illustration into three layers as shown in figures 1.2, 1.3 and 1.4. In these you find a fore-ground, middle-ground and background respectively. Dotted lines indicate the areas that will be covered by the front frame ultimately when your angle of vision is at right angles to the vertical background of the diorama.

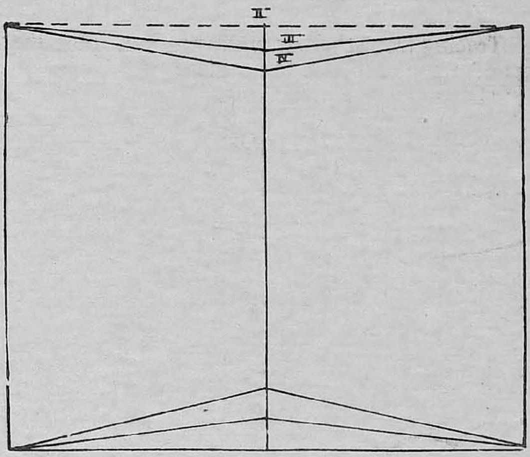


Fig. 1 5

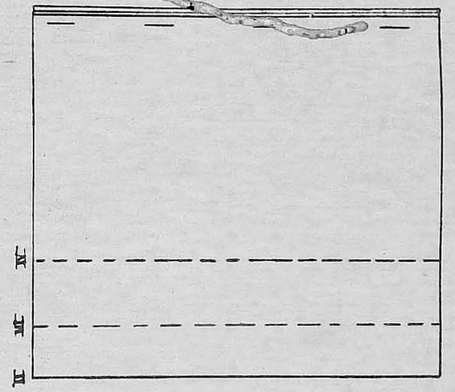


Fig. 1.6

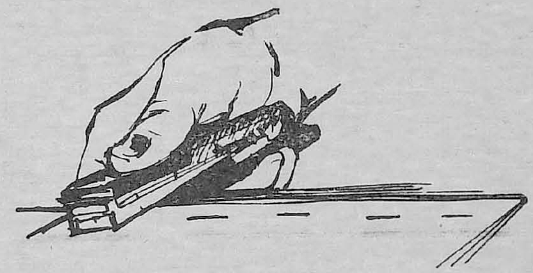


Fig. 1.7

Prepare three cut-outs corresponding to the three layers as shown in the three figures under reference. This can be done with pieces of cardboard or thick card paper. Split the illustration on to these and colour these cut-outs. Fold these along a central vertical line. Hold all these vertically on a table, adjusting the position and the angles as shown in figure 1.5. The two vertical edges of the cut-outs must converge in a straight line, so cut-out an extra protruding part. When you fold these, you get a folder-like shape as shown in figure 1. 6. Staple the edges with a simple stapling tool as shown in figure 1.7. Thus your Vertical Folding Diorama is complete.

JUMP-UP DIORAMA

You must have seen the pictorial jump-up picture booklets that children love to use. This diorama is like the two open pages of a booklet with some parts protruding and jumping up as it is opened keeping the base horizontal. Fig. 2.1 is an illustration giving a glimpse of Eskimo life. As in the previous technique, choose some portions to serve as vertical layers in perspective to create a three-dimensional

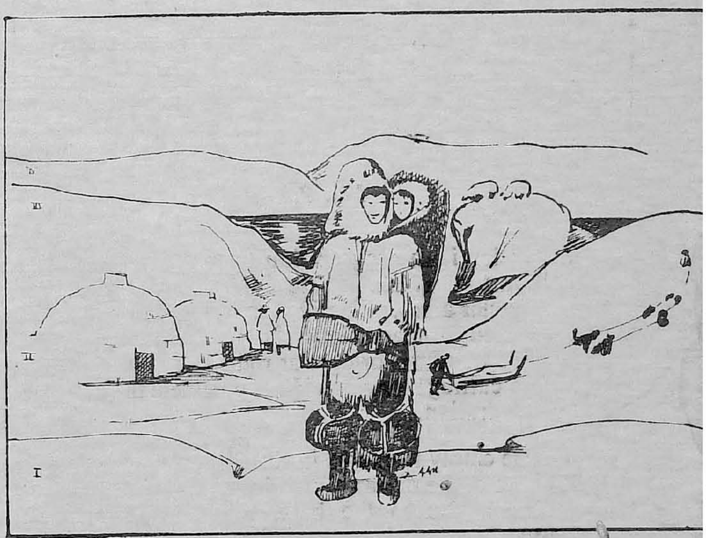


Fig. 2.1

effect. Tracing from the basic illustration, plot the outlines of these cut-outs on a piece of fine-quality cardboard, mount-board or thick card paper. The dimensions are generally enlarged by simple techniques of enlarging. The vertical distribution of the

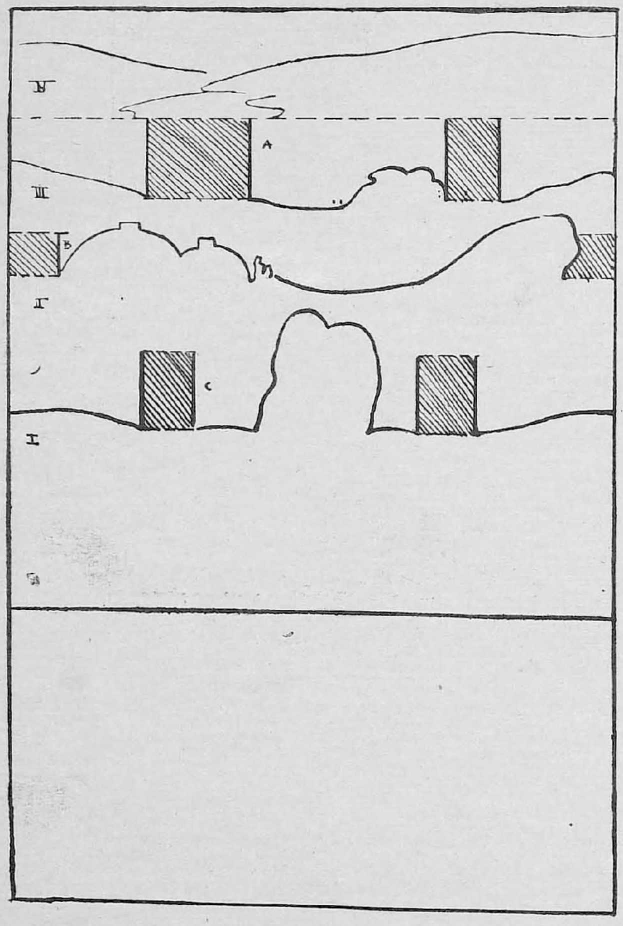


Fig. 2.2

illustration is an exaggeration to provide for bridges as shown in fig. 2.2. These bridges are the shaded rectangular areas. The illustration is to be cut with a sharp edged razor along the outlines and along the thick edges of the bridges at right angles to the base. Before cutting along these lines complete the details of the illustration.

The empty rectangle in the foreground serves as the base of the diorama as it jumps up with the layers at right angles to the base. Fig 2.3 indicates the relative distances between different layers. The dotted line at the base is equal to the total of the lengths of the bridges, A, B & C. The vertical lines I, II, III & IV indicate the relative heights as shown in fig. 2.2.

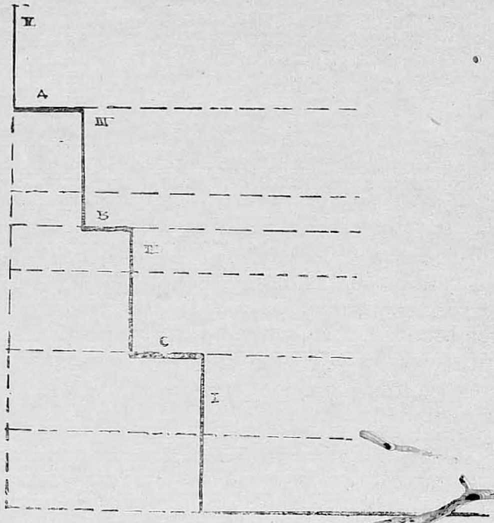


Fig 2.3

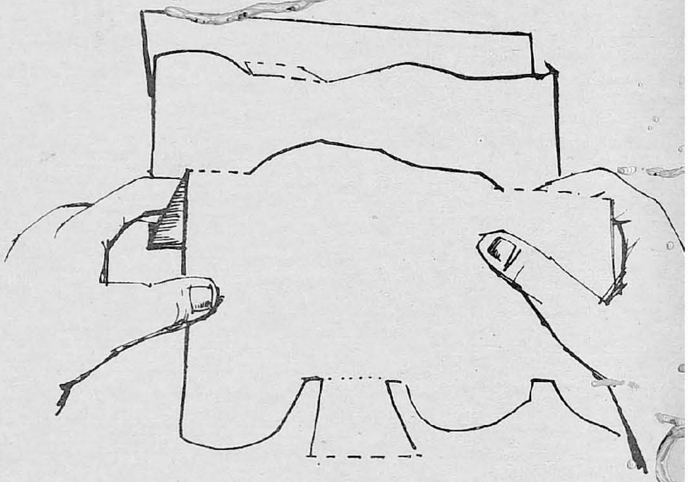


Fig 2.4

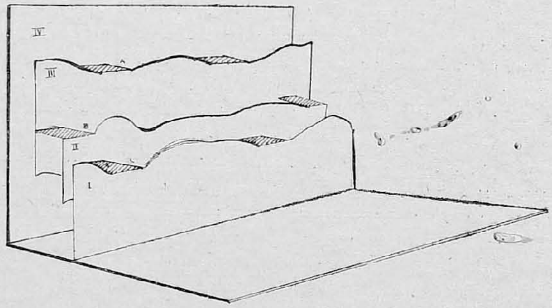


Fig 2.5

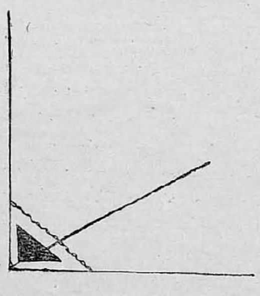


Fig 2.6

Figure 2.4 shows the cut-outs being held parallel to one another. In figure 2.5, these are pasted on to the two pieces of cardboard, one serving as the base and the other providing the total background. This gives the final configurational view of the parallel layers and bridges. If we fix a small rectangular piece of cardboard along with a thread at one of the right-angular joints, this will facilitate the holding of the diorama in proper position.

TABLE-TOP DIORAMA

In this diorama the cut-outs jump up vertically on the base as the diorama is opened like a folder placed on a flat surface. Figure 3.1, shows the basic illustration. The dioramic elements, i. e., the outlines of foreground, middle-ground, and background are shown in figure 3.2. This shows the guide lines or the layout where the cut-outs are to be pasted or stapled

Fig 3.1

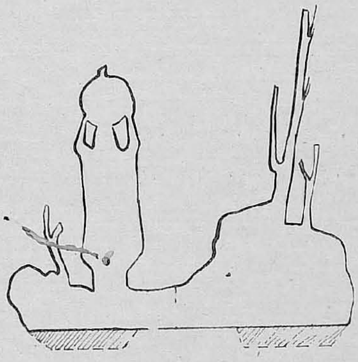


Fig 3.2

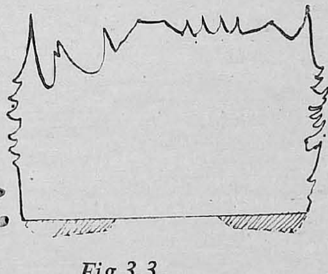


Fig 3.3

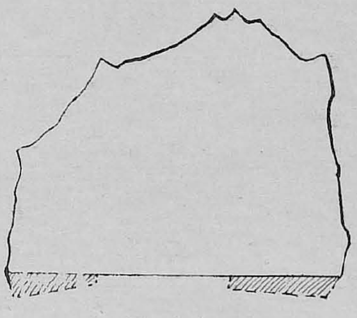


Fig 3.4

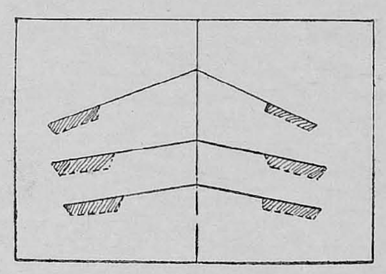


Fig 3.5

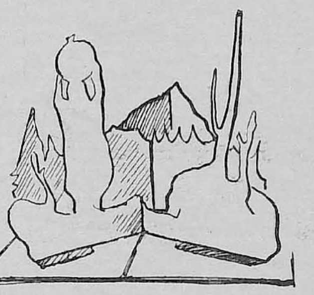


Fig 3.6

on two basic cardboards that unfold and are flattened out into the base. The shady areas on the base indicate the portions of the cut-outs that are to be pasted. Figure 3.6 represents the complete diorama.

DOUBLE-FOLD DIORAMA

In such a diorama the cut-outs get folded into two different directions. To illustrate this, simple example of a hut has been portrayed through the succeeding figures. Figure 4.1 indicates the complete hut. Figure 4.2 indicates the top of the hut which is glued to the walls separately. The shaded portion again shows the extra portion to be glued or stapled on to the base. Figure 4. 3 shows the side elevation. Figure 4. 4 gives the guide lines of the base. The sides are left loose to be folded before the entire diorama is folded.

These examples indicate that a wide variety of simple folding dioramas can be prepared with pieces of cardboard and other inexpeneive materials. You can vary the technique by experimentation in order to provide some more details. Such simple dioramas serve a wide variety of educational purposes. Many a concept in different subjects of the school curriculum, can be depicted through the dioramic displays. Such displays will develops purposeful activities and will involve the students. Left in the classroom the dioramas will provide a permanent source of attraction for the students.

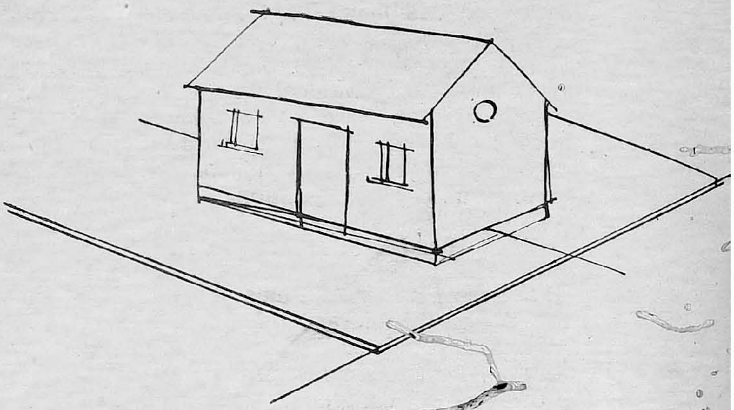


Fig 4.1

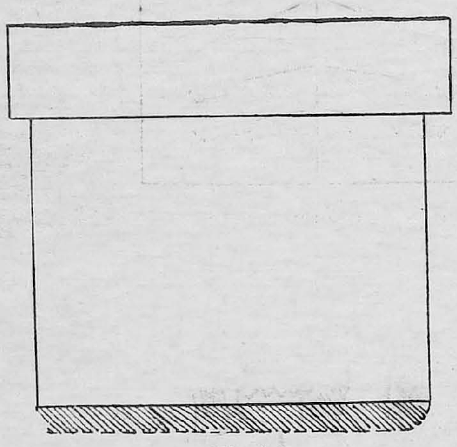


Fig 4.2

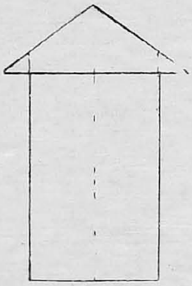


Fig 4.3

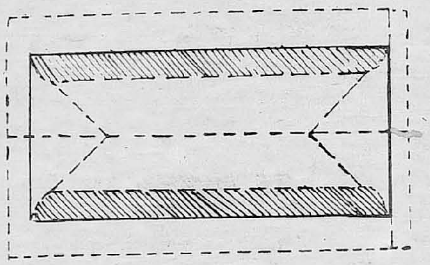


Fig 4.4

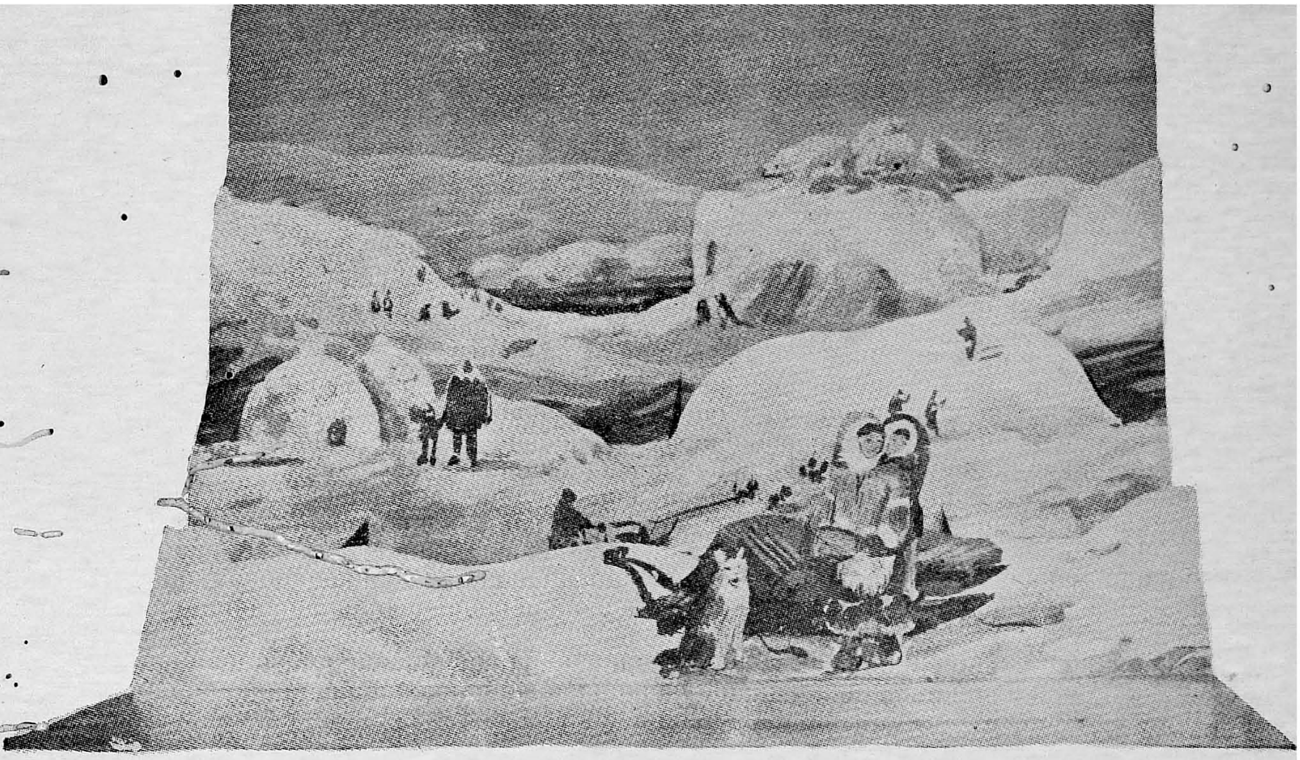
On the next pages we reproduce a few photographs of the experimental dioramas produced at The National Institute of Audio Visual Education.

(Diorama Nos. 2 & 3 on the opposite page)

IN THE COLD LANDS

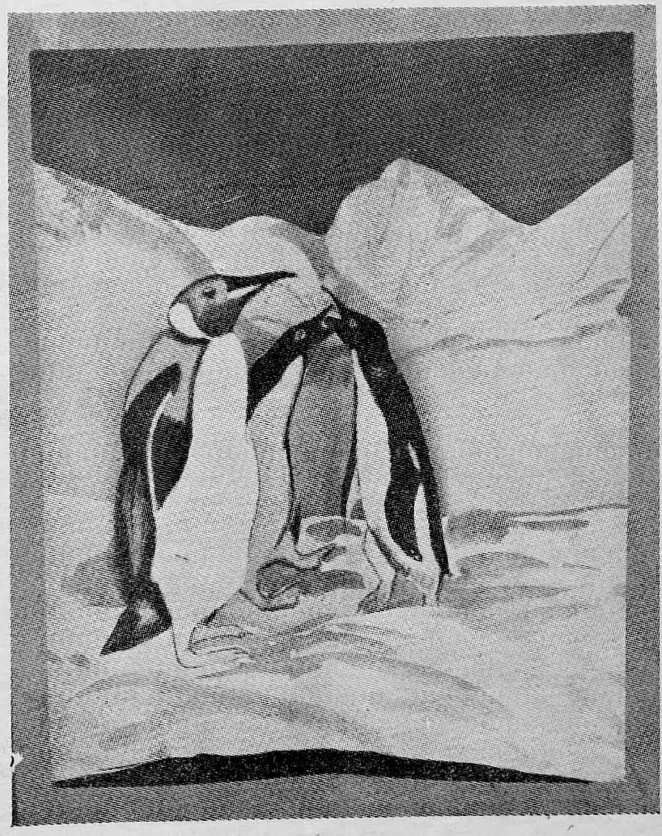
These two dioramas provide some elements of realism while teaching concepts involving the cold lands. These can be very effectively used for the Tundra and the Ice-Cap types of Natural Regions. Notice the Land of Eskimos portrayed in all its vividness. The animal life, the heavily clad men, the icy abodes and the moving sledge, winding through snow-bound terrain, are distinctly shown.

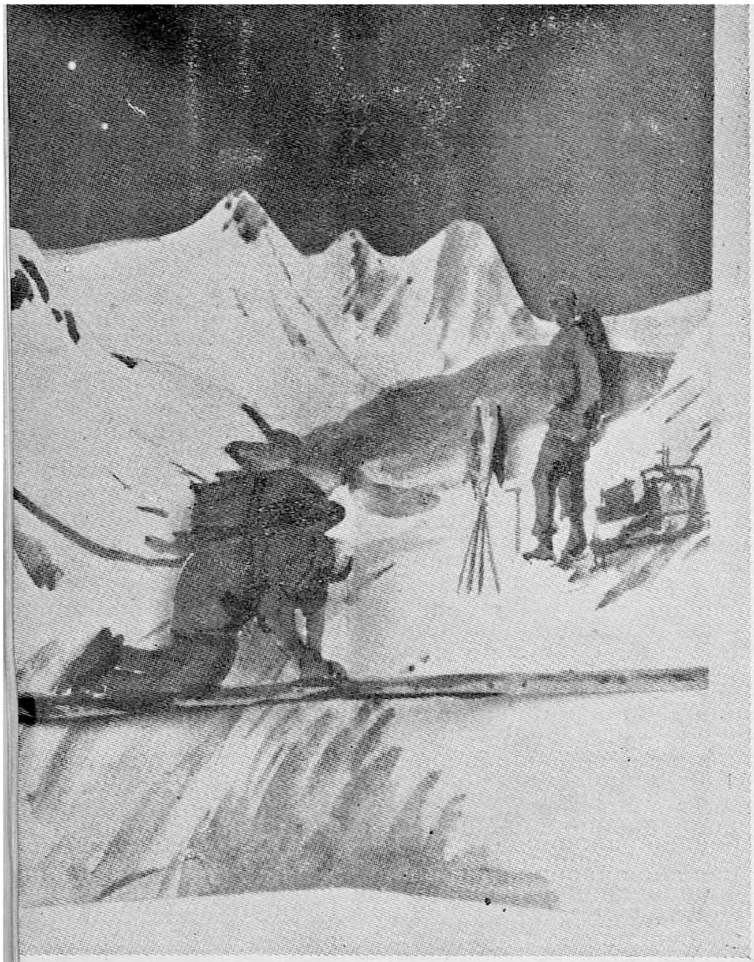
In the other diorama the barrenness of the Ice-Cap regions guarded by the penguins, symbolic of life, is brought into perspective.



Diorama No. 2 ↑

Diorama No 3 ↓





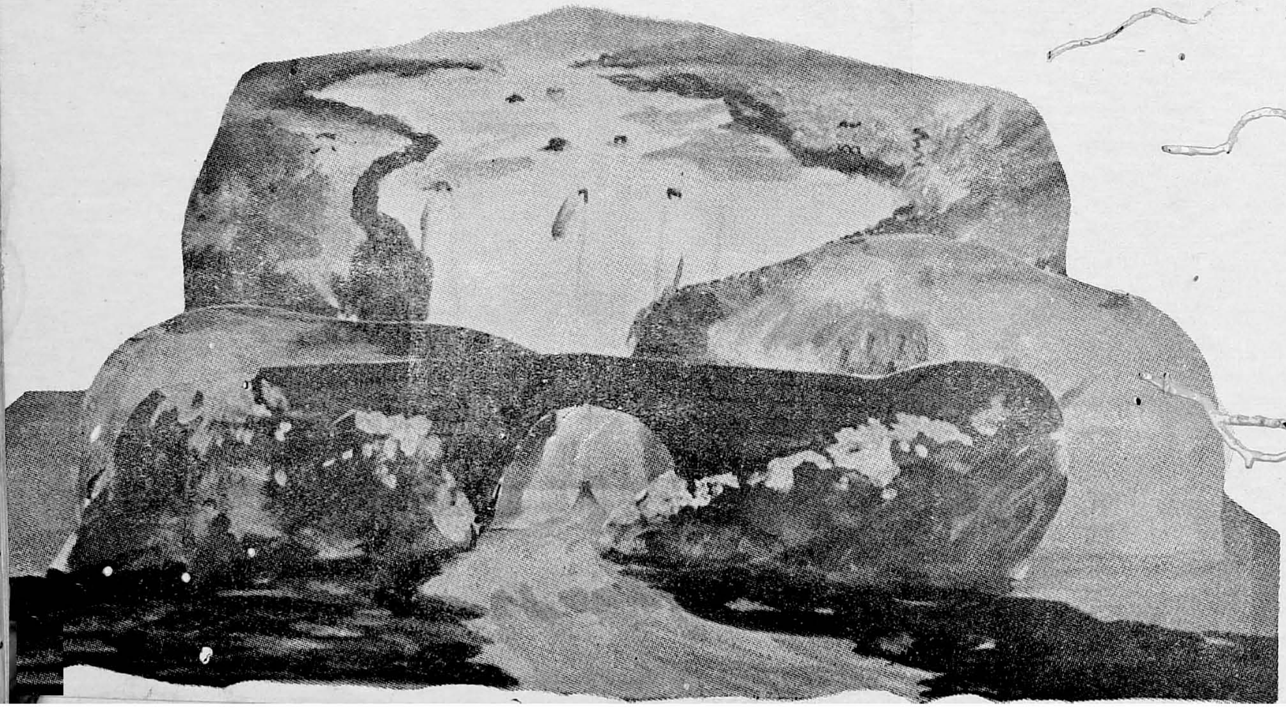
EXPLORING THE MOUNTAINS

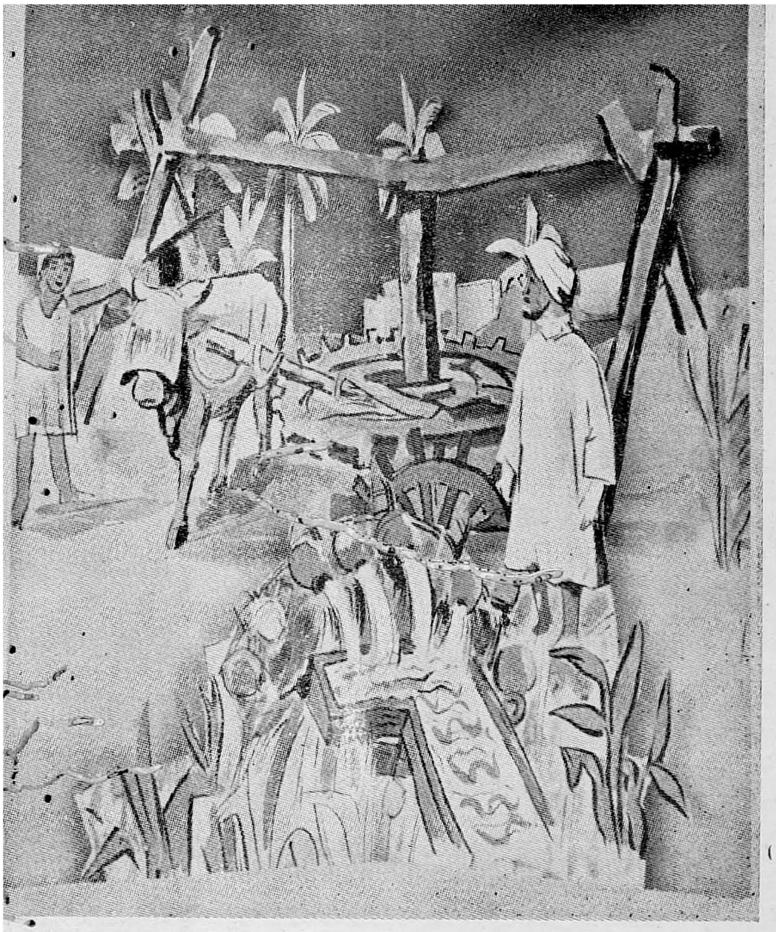
These dioramas can be used while teaching certain aspects of mountainous topography and the adventures of mountaineering.

Notice the explorer negotiating a hazardous and narrow bridge, in one of the dioramas: In the other a distant meandering stream with its picturesque waterfall flow through a bridge.

← Diorama No. 4

↙ Diorama No. 5





(Diorama No. 6)

This diorama vividly depicts a system of irrigation prevelent in the deserts in thl Arbion countries. It is easily fnided and rcplaces a cumbersome model that will serve the same purpose.

Problem of Shortage of A.V. Aids in Schools and Some Suggestions to Get Over it

(Contd. from Page 8)

But experience shows that this argument is not based on facts. The few who have a will to work honestly in the profession are faced with difficulties. Very few teachers get less than thirty six periods per week in a time table of forty eight periods per week. The twelve periods that are shown vacant are not adequate even for the correction work, while quite a number of these periods are snatched away by absentee-arrangements and co-curricular activities. Some enthusiasts might say that the teachers should devote some time to such activities in addition to the school hours. They might say that the teachers have a long vacation, and they enjoy more holidays than persons in other services. But rightly or wrongly few teachers curtail their holidays for this work.

Let us take the case of a teacher who can find time for improving and collecting aids. The school will hardly be able to provide storage facilities to him. For example for good teaching of geography, we require not only a laboratory but a museum also. Take for instance, a lesson on tea. At best a teacher will have a distribution map showing areas of its cultivation, but it would be very useful if the children could be shown actual tea leaves, to give them the right idea of how tea leaves look like.

In this way if we draw up a list of necessary maps, pictures, models, dioramas, kits and scientific instruments for the teaching of geography, we will require a big hall and a large number of cupboards which few institutions can afford to have.

Even if each institution could afford it, will it be worth-while ? A simple orrery will cost about Rs.100/- and it will be used only for one day in a class. Could we not have one orrery for twenty schools in a city ? This would be possible if we have equipment-libraries in the cities.

The case has been made out for the purpose of geography teaching. The problem of having aids for the teaching of all curricular subjects is immense, especially for the teaching of scientific subjects like, Physiology, Hygiene, and Home Science, each of which requires space for the storage of various types of appratuses, demonstration equipments, charts, models, specimens etc. Useful and attractive aids are now used even for the teaching of languages and mathematics. Programmed material for various subjects is also becoming available. These could find a place in a library of teaching aids.

If, however, we make a study, we could list a number of aids for each subject, cheap or costly, which would be required for demonstration only once or twice a year. For such aids we could have a sort of library from which the institutions could borrow the aids.

DEMONSTRATION VANS FOR RURAL AREAS

But such a library can be conceived for cities where there are a number of institutions, can we do

something for the rural areas also ? Equipment vans should solve this problem for the rural areas. The mobile cinema vans at present, can with imagination be converted into multipurpose vans. These multipurpose vans can be equipped with telescopes, microscopes, and a number of audio-visual aids which the individual schools are not able to afford or to store within their premises. On one occasion, I took an astronomical telescope to a village and showed to the villagers the rugged surface of the moon through the telescope. To the educated ones I showed the moons of Jupiter. I can hardly forget the joy the spectators had in having a peep through the telescope. It is not a question of entertainment only. Easy access to such aids has a psychological value, working at the moon and other planets through the telescope cuts away the root of superstitions associated with the planets.

The idea of demonstration vans is not new. The U. S. I. S. (United States Information Service) had a nuclear energy van. A demonstration van jointly sponsored by the Atomic Energy Commission of our country and the NASA (U. S. A.) has been visiting important educational centres of the country and enlightening people on space flight. For the purpose of our schools, we need such vans with simpler equipment useful from the point of view of the institutions. Such vans can be attached with the urban apparatus pools or libraries and can take different demonstration equipment on their different rounds. It is true that a van may not reach the school to provide a telescope at a time when, a lesson on telescope is being taught, but it cannot be denied that the students should get an opportunity to see the telescope and to see through the telescope whenever it is possible to do so. Let us make a humble beginning with the most important teaching and learning aids but we should be ambitious to attach museum wings to these pools whenever funds permit us to do so.

There will be a number of things difficult to transport to the schools and some equipment which every teacher may not be able to handle. To meet such situations it would be better to bring the students to the equipment library and to arrange necessary demonstrations for their benefit with the help of experts capable of handling the equipment library.

WORKSHOPS FOR REPAIR OF EQUIPMENT

There are a number of other problems relating to the use of audio-visual aids in the schools. Let us take the case of radio and 16 mm film projectors which have become popular with the institutions during the last decade or so. Every higher secondary school in U.P. is expected to possess a radio and to take advantage of school programmes broadcast by the A. I. R. But experience shows that most of the institutions are not listening to these programmes. The radio sets in most of the institutions are not in working order. Facilities exist for the repair of radio sets in almost all the urban areas of U. P. but the unfortunate thing is that the repairs are not satisfactory and even petty repairs cost a lot of money which the institutions can hardly afford.

The position with regard to the repairs of the projectors is still worse. The facilities for the purpose in U. P. are poor and exist in Varanasi, Lucknow and Allahabad and for major repairs, one has to depend on Delhi or Bombay. Proper facilities for repairs handicap and discourage the educational institutions in their programmes of audio-visual education. Advocating the use of films and projectors without proper arrangements for the repairs of the projectors is meaningless and causes great stagnation and waste. Science teachers have been seen going in for new equipment not because they need it but because it was not possible to get the defective equipment repaired. No less important than the facility of loan of equipment is the facility to get the equipment repaired. We need workshops for the repair of equipment and it will only be proper to have them integrated with a few apparatus libraries on the basis of educational regions in a state so that there is a workshop for each educational region.

TRAVELLING SCIENCE TEACHERS WITH TRAVELLING LABORATORY CARTS

What has been written above is mostly from the point of view higher secondary schools. We need, however, consider the problem of primary and junior high schools also. In most of the primary schools science is taught through book reading only. The type of teachers that we have, will not collect or improvise the aids, however simple they may be for the primary schools, I think, travelling science teachers are required with equipment carts. The children in the primary schools are taught about the human body, common insects (house fly, mosquito,

butterfly, ant, bee, etc.) and some other animals (snake, spider, scorpion). Very interesting lessons on these can be given if we have suitable visual aids for each lesson. In fact, there could be aid kits on each insect and on each disease caused by it. Children of the rural school would be very much interested if we could show to them the models of aeroplanes, of various types of ships, submarines, telephone, water turbine, agricultural implements for various purposes. We could have improved bullock-driven carts running on tyres with their body so designed as to carry the equipment without exposing it to shocks. These carts could camp in the villages and give lessons on science and geography and give puppet shows for three to four days during day time and arrange demonstrations for the illiterate villagers after the school hours. Keroscopes could be used for showing slides and filmstrips.

MAP PRODUCTION FOR PRIMARY SCHOOLS

Each primary school is expected to teach geography of the district and the State in which it is situated and for this various types of aids of the district and the State are required. At present most of the primary schools do not possess these (I know this about U. P.). The preparation of suitable maps for teaching the district, tehsil, the block and the village with only as much detail as is necessary at each stage should be arranged by the teaching aids library of the district headquarters. The production of maps of the state should be taken up by the unit envisaged for the production of non-projected aids.

CENTRAL SCIENCE SCHOOLS

The junior high school students can be taken away from their villages and we can have central science schools for them, one school catering for about twenty five junior high schools. These central science schools could arrange a week's course in science for the students of each class of a junior high school and give them talks on such subjects for which equipment cannot be provided school-wise,

DEMONSTRATION FARMS

The junior high and the primary schools of big cities have to face a special problem if they wish to tell their students something about how the fruits, vegetables and cereals are grown. Many of the younger students do not know whether potato grows underground or hangs from the tree as a fruit. I wonder if the cities will like to leave an acre of land to serve as a demonstration farm for the students of these junior high and primary schools which could cater for all schools falling within the 5, mile radius.

AIDS IN THE APPARATUS LIBRARIES

The aids in the library could be kept type-wise, charts in one place and life histories at the othre place, models at a third place, but it would be better to organise study kits topic wise and class wise. A kit on malaria will include the life history of mosquito, an enlarged picture of mosquito, a chart of malaria cycle in the body of the mosquito, and in the body of man, a small packet containing the latest medicine of malaria, graph of the temperature variation in various types of malaria, chemicals and instruments used for destroying mosquitoes. There could be suitable microslides showing the malaria germs in the blood, maps of malaria regions of the world, the bark from which quinine is extracted and photographs of scientists who discovered the treatment for malaria. The best thing will be to have kits on malaria, one suitable for the primary classes, one suitable for the higher secondary stage.

STATE CENTRES FOR PRODUCTION OF STUDY KITS ETC.

The kits will have to be assembled. If each district takes up the production of kits for its schools, there will be much duplication. This should be done at a central place in each State. In other words each State should establish production centres for non-projected aids.

TRANSPORTING EQUIPMENT FROM THE LIBRARIES TO THE INSTITUTIONS

It is easy to transport charts or picture sets but we have to be careful about glass which cannot be transported without the risk of breakage. It is therefore necessary that each equipment library keeps special cyce-driven small *thglash* with small boxes in which thel equipment can be transported from the library to the institutions and back. Transpotation of equipment should be the responsibility of the libraries. Persons responsible for delivering the equipment should be intelligent, literate people so that they can check the contents of the kits before collecting them.

There will be a number of problems when the scheme comes into operation but, these problems can be solved. There can however, be no solution to the problem of a teacher not willing to use an aid in spite of all the facilities except probably a watchful school administration.

It is envisaged that the aids library will charge some fee from the member institutions according to the service rendered and the institutions will pay from the funds of Audio-Visual Aids fee charged from the students. The library will have a subject-wise teachers' board for each section to advise what aids should be purchased or prepared and to think out solutions of the problems that may arise. The library as a whole will be under the over all supervision of the Principals' Association of the locality. The funds for the establishment of experimental units should be found by the Government.

OUR INDIA
—A STUDY KIT

Solids objects constituting material for study of any topic in a compact form and in one 'package' provide a visual instructional aid easily accessible both to the teacher and to the learner. For the teacher it becomes an instructional tool to motivate learning and to the learner it becomes a constant reminder and a source of inspiration for further study. By no means can an instructional tool of this kind be complete in all details, however large its size may be. Outdoor study in contact with realities can alone give full information about any country and its varied aspects of life, resources, industries and social structure. This study kit on 'Our India'*, is intended to supplement the verbal and written information by putting together a few objects and specimens in a ready-made display form for the convenience of the teacher and the taught. It is hoped that it will serve the purpose which it is intended to fulfil.

* Designed and Produced by : National Institute of Audio—Visual Education.

DEFINING A STUDY KIT :

A study kit is a general, teaching learning device, consisting of a correlated assemblage of audio-visual aids, such as graphic aids, small models and specimens, filmstrips, slides, folders, pamphlets and allied literature, etc., pertaining to a particular subject or theme. These audio-visual materials or instructional aids are carefully selected to depict various aspects of the main subject or theme, or they elaborate a topic in detail. The materials are artistically placed in a box.

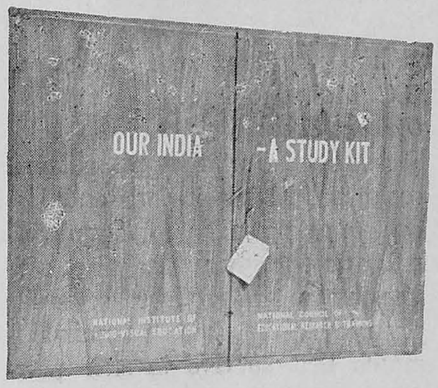
PURPOSE OF THE STUDY KIT ON INDIA :

1. To provide a comprehensive view of India in a correlated pictorial form consisting of an assemblage of visual aids, such as charts, maps, posters, small models, specimens, filmstrips, slides, folders, pamphlets and allied literature, etc. pertaining to various aspects of India.
2. To present stimulating material for further study that will revitalize and enrich the school curriculum.
3. To provide a wide variety of teaching materials on India in general.
4. To develop ultimately a basic awareness about different historical, cultural, social, economic, and other aspects of India on the part of the Secondary School students in particular and the laymen in general.
5. To highlight the perpetual unity in the cultural diversity of India and to foster national and emotional integration.

SCOPE OF THE STUDY KIT :

This kit has been assembled with a view to providing instructional materials about the national culture and present day life in India. The materials have been collected for specific use in secondary Schools, however, some material in it can be used for social studies in the elementary schools. There is a lot of reference material for the teachers and the display and contents of the kit are motivating and involving enough even for adults.

To crown all, this kit will serve as a novel and absorbing teaching device which will enable the students to comprehend our customs, aesthetic standards and ways of thought and behaviour. The resources of this kit are sufficient to motivate the students to develop some individual and group projects on different sectional topics analytically displayed in the kit. In order not to make the kit unduly bulky and expensive, films on India have not been included. It is possible to borrow such films from the Central Film Library.



The Compact kit box

CONTENTS OF THE KIT :

Land :

One small relief model of India developed at the Institute.

Handicrafts :

1. *Wooden fish :*
   Wood-work is a popular handicraft in most parts of India.
2. *Brass Pin Tray :*
   Enamelled metal-work is produced in various places such as Delhi, Kashmir, Madhya-Pradesh, Punjab, Himachal-Pradesh, Rajasthan and Uttar Pradesh.
3. *Sandal Wood Paper Cutter :*
   The sandal wood with its delicate natural fragrance is typical of Mysore and a few other places in South India.
4. *Lacquer-work Beaded Bangle :*
   It is typical of Rajasthan, Uttar Pradesh and some other States of India.
5. *Bidri Pin Tray :*
   Bidri ware is popular in Hyderabad.

6. *Ivory replica of Ashoka Pillar :*

Ivory work is typical of Delhi and Mysore.

7. *Papier Mache Candle-stick holder :*

Papier mache toys and other handicrafts provide a vocation to many people in Kashmir, Uttar Pradesh and Rajasthan.

Sculpture :

1. *Seal showing Pipal Tree and Heads :*

This seal shows two heads on either side of and almost entwining the pipal tree. The legend below is in pictographic script and is not yet deciphered. Stone, Circa 2500 B.C. Mohen-jo-daro.

2. *Unicorn Seal :*

The unicorn, which occurs frequently on seals at Mohen-jo-daro and Harappa, is an interesting animal of fancy and it takes us back to a very early age when human imagination had produced several creations, phantasy in the shape of animal and bird motifs that survive in later part. Stone, Circa 2500 B.C. Mohen-jo-daro.

3. *Medallion with Feasting Scene :*

This is an example of the many toilet trays found at Taxila, an important centre of Gandhara art, and elsewhere, with delicate miniature carvings of feasts and other themes. Gandhara, 2nd Century A.D. Taxila.

4. *Scenes from Buddha's Life :*

This is a fine example of miniature carving of Pala period from Nalanda, a great centre not only of learning but also of art. Pala 9th-10th Century A.D. Nalanda, Bihar.

People

Dolls in colourful costumes representing people from three different corners of India have been included.

1. A belle from Kashmir.
2. A lady from Coorg.
3. A warrior from N.E.F.A.

Literature :

A collection of books, pamphlets and allied pictorial materials on different aspects of India have been kept. Almost all of these have been produced by the 'Publications Division, Ministry of Information & Broadcasting, Government of India'.

India—A Pictorial Survey.
Face of New India—Some achievements of Planned Effort.
India 1962.
Children's History of India.
Third Five Year Plan—Summary.
We Plan for Prosperity.
Our River Valley Projects.
Facts About India.
Folk Dances of India.
Festivals of India.
The Dancing Foot.
India's Forests.
Population and Food Production.
Power for Industry.
Archaeology in India.
Our Birds.
Sarnath.
Durgapur Steel Project.
Bhilai.
Rourkela.
Temples of North India.
Temples of South India.
Chinese Aggression in Maps.
Delhi.
Kashmir.
Rajasthan.
Madhya Pradesh.
Bombay State.
Maharashtra and Gujarat.
Orissa.
West Begal and Assam.
Kerala.

PICTURE POST CARDS

These picture post cards have been produced by the Department of Archaeology, Government of India.

Agra—Two sets.
Ajmer and Pushkar.
Chitorgarh.
Sanchi.
Khajuraho.
Nalanda.
Ajanta Paintings.
Ellora.
Mahabalipuram.

MISCELLANEOUS CONTENTS :

One Slide Book on different aspects of India. One panel of major specimens of crops, metals and minerals of India. A filmstrip on 'Historical Monuments of Delhi', with teaching notes. A tape-record of music of India.

A few dolls, representing people from different parts of the country, have been included in the study kit.

CHARTS AND PORTRAITS

Rice Production in India.
Wheat Production in India.
Tea Production in India.
Cotton Production in India.
Portraits of literary personages of India :—

Lokmanya Bal Gangadhar Tilak, Subramania Bharati, Rabindranath Tagore, Altaf Hussain Hali, Mahatma Gandhi, Munshi Prem Chand.

National Economic Development, Atlas of India—containing a set of eight maps.

HOW TO USE THIS KIT :

1. This kit can be conveniently displayed in the school library. Place the kit on a broad table and spread a part of the literature on the table. Some maps and portraits can be displayed on a bulletin board fixed on the wall near or behind the box.

A small group of ten to twelve students can conveniently sit around the table at a time, to observe it. Different groups of students can regularly sit around the kit for observation and study. If the contents are spread out on three or four tables the entire class can be involved in it simultaneously. Thus a special study kit period can be arranged on certain days during the school routine.

2. Individual assignments related to the contents of the kit can be conveniently developed. The kit is particularly useful in social studies lessons. Different topics related to the syllabus can be assigned to different students and they can glean through the references in the kit.

3. The kit can also be kept in the corridor or the hall, of the school and students can see it as they pass by it during their leisure hours. Thus it will leave some impression on their minds.

4. A group of students can be made the custodians of the kit and they can issue the literature books, cards for study to different students in rotation.

5. Similar kits on different curricular topics can be developed and assembled as a result of pupil-teacher participation.

TWO RECENT PUBLICATIONS

THE ROMANCE OF TEACHING

Pages 96 *Price Rs. 2.50*

The first in a series of books for Supplementary Reading in the Secondary Schools of India, *The Romance of Teaching* is addressed primarily to Indian boys and girls of between 14 and 17 years of age.

The portrait of the Teacher through the ages that emerges in this study in twelve chapters, is intended to show both the passion and the prose of this dedicated profession, and to bring it close up to readers so that they will understand the kind of lives that some of their teachers live.

In the range of information that it assembles within its 96 pages, its persuasive writing and its power to simplify difficult concepts, it caters as much for teacher-trainees and teachers as for students and is likely to hold the general reader by its analysis of the uncommon task of teaching today.

Copies available from :
Chief Publication Officer,
National Council of Educational
Research and Training,
114, Sunder Nagar,
New Delhi—11.

GENERAL SCIENCE HANDBOOK OF ACTIVITIES—CLASSES VI-VIII

Page 458 *Price Rs. 9.50*

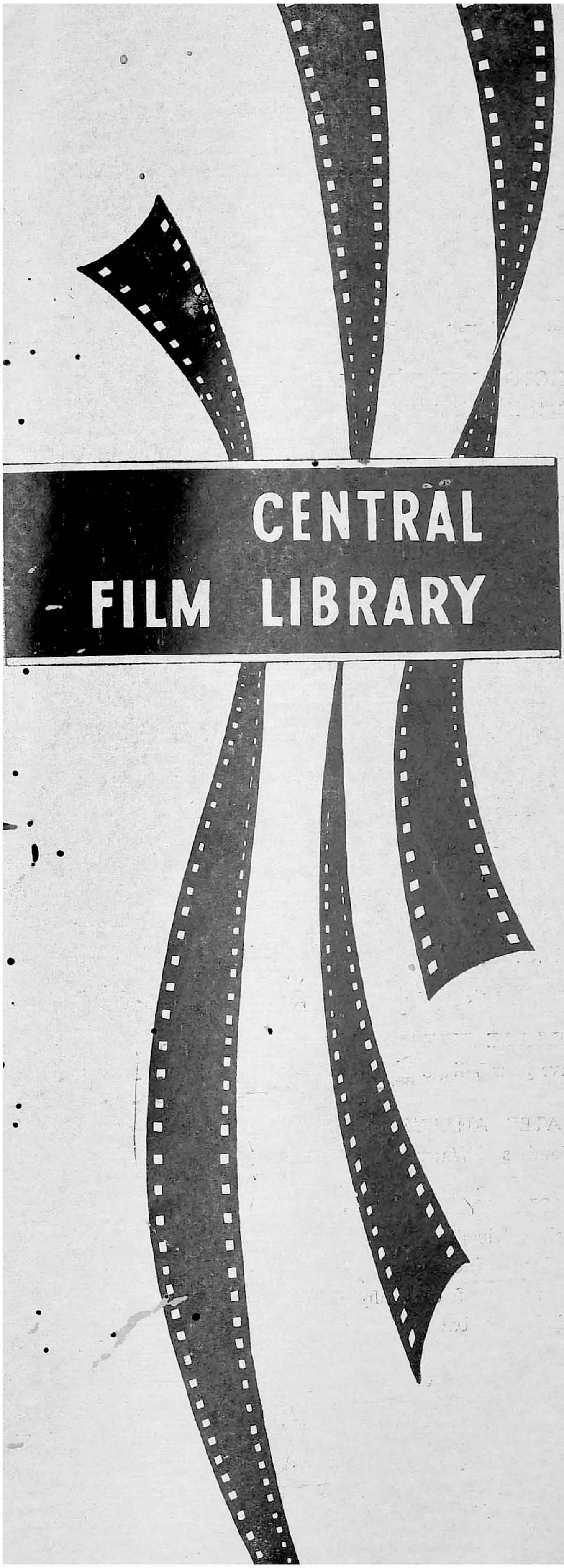
One of the objectives of the National Council of Educational Research and Training is to disseminate knowledge of improved educational techniques and results of research studies. This is particularly so for science education which is gaining importance at all levels of education in the country. Accordingly, the Council prepared in 1963 an all-India syllabus in General Science for Classes I to VIII.

The General Science Handbook of Activities provides guidance material to the teachers of classes VI to VIII. The Activities suggested in the book provide a practical training to the students of all interests and aptitudes. The Handbook contains a number of projects and experiments suggested as Activities to be used in developing the sub-concepts and major concepts. The experiments have been so devised that most of them can be set up with simple improvised equipment that a teacher can easily manage to get. The teacher can easily adopt other experiments on the same lines as those in the book and thus develop the lesson he teaches.

The book will also be found useful to matured pupils and science club leaders.

A similar Handbook of Activities for classes I-V is under preparation.

Copies available from :
Chief Publication Officer,
National Council of Educational
Research and Training,
114, Sunder-Nagar,
New Delhi. 11.



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SUBJECT INDEX TO FILMS

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Battle for Life

PHOTO ELECTRIC CELLS
Photo Emission

RAILWAYS
Life Line

RADIO ENGINEERING
Principles of Transistors

RELATIVITY
Science Looks ahead

ROCKS
Rocks and Gems

TELESCOPE
How Many Stars

TIME
Time

U.N.O.
Ethiopia Advances

VILLAGE FIRES
Save your Village

WATER ANALYSIS
Wonders of Water

ZOOLOGY
Animal friends
Spider Engineer
Emergence of dragonfly
Blind as a bat

MIKE MULLIGON & HIS STEAM SHOVEL

Western Woods Studios *English* *11 mins* *398.21*

Mike Mulligon had a beautiful red steam shovel named Marry Anne. He was very proud of her and their association was years old and they together dug many canals tunnels, highways, air landings fidds, cellars and what not they had the weekness whenever people watch them, they used to dig faster and better. The more people watched, the faster and better they and had the record of digging 37 truck loads of dirt a day. Then came new gasoline and electric and diesel motor shovels and took all the jobs from steam shovels. Mike loved Mary so much that he could not leave her and so they were miserable. After reading in a newspaper about a cellar in town hall Mike approached the authorities and was given the chance. Their weakness helped them to do the job. The more people collected to watch them, the more they dug. Finally, the cellar was made. This encouraged them and they were asked to make a new Town Hall. Both were now very happy. Mike smoking his pipe and Mary sitting near him in Town Hall.

Suitability : For children of all ages. FOLK-LORES

MILLIONS OF CATS

Western Wood Studio *English* *11 mins* *398.21*

Once, there lived a very old couple in a nice clean house who felt miserable due to loneliness. The old lady earned for a sweet little fluffy cat and with a view to make her happy, her hubby set out to look for one. At long last he came across a hill full of millions, billions, and trillions of cats. Being confused to choose one, he ultimately moved towards the house with the entire battalion and it became a problem for them to feed them all. Finally with a view to select one, the old man questioned the cats "Which one of you is the prettiest?" They all quarrelled among themselves and left the place. The couple took it for granted that they had eaten each other all up. They found one little frightened kitten hidden behind the grass who was very thin and scraggy, and which escaped attention of the other ones due to her being simple and homely. The old couple took her to their house and cared for her and soon it grew into a nice plump sweet cat.

Suitability : For children of all groups FOLKLORES

BEAVER DAM

N.F.B.C. *English (Col)* *16 mins* *398.22*

A story of boys and beavers, how the boys' loyalty to their resourceful friend holds firm when the beavers' life is threatened. A film for children, one of its greatest appeals is watching the beaver at work, busily and cheerfully demonstrating the characteristics for which it is most famous. Sometimes, however, a beaver industry runs counter to the plans of man. In the end when the beaver dam floods their father's hay field, the two boys quickly devise their own plan for saving the beaver from their father's rifle.

Suitability : For school children FOLK-TALES

HOW MANY STARS

Moody Insti. *English* *9 mins* *522.2*

This film presents a short history of the development of telescope and the discoveries that follow. Our solar system the milky way and distant galaxies are explained. The meaning of a light year is clarified. The number of stars and the vastness of space are dramatised.

Suitability : For students of astronomy TELESCOPES

TIME

Indiana Univ. *English* *15 mins* *529.1*

It presents methods of determining and keeping time and uses of times. Traces the development, adoption and designation of time zones and demonstrates the need of the International Date Line. Contrast the Use of Daylight Saving Time and Standard Time in winter and summer. Portrays the role of the U.S. Naval observatory in determining the time of day and the role National Bureau of standards stations W.W.V.H. in disseminating time signals. Presents specialized uses of time in determining rate and frequency.

Suitability : For schools and colleges. TIME

SCIENCE LOOKS AHEAD

N.F.B.C. *English* *10 mins* *530.11*

A screen magazine film containing two items: Airmen; Medicine and Missiles : Canadian Scientists develop unique devices to meet the challenge of the space age—eventually to enable man to fly farther, faster and higher. Neutrons at work : A film visit to Canada's atomic research centre at Chalk River, Ontario, shows in action the most powerful atomic reactor in the free world, as well as atomic research in such fields as medicine, industry and agriculture.

Suitability : For all groups of adults Engineers RELATIVITY

PHOTO EMISSION

E.F.V.A. *Eng.* *16 mins* *537.54*

Two demonstration shows depicting how the two basic laws of Photo Emission were deduced. The first the number of electrons emitted is directly proportional to the intensity of the incident light and the second that the maximum energy of emitted electrons is directly proportional to the frequency of the incident light. The quantum theory of Planch and Einstein is then described and by use of animated diagrams the film demonstrates how this theory explains the two laws of photo emission.

Suitability : For students of Physics, PHOTO-ELECTRIC CELLS

WONDER OF WATER

Moody Insti. of Sc. *Eng.* *11 mins* *543.3*

Uncle Bob solves the mystery of H_2O for his young friends. He uses electrolysis equipment in a dramatic way to separate water into hydrogen and oxygen. Bob's vivid demonstrations and simple explanations introduce the students to molecules and the nature of gases. The water cycle is discussed, evaporation and condensation are explored.

Suitability : For students of chemistry WATER—ANALYSIS

SILENT SENTINELS, THE

D.F. I. *Hindi* *20 mins* *551.4*

The film shows how the Himalayan mountains have been an intimate part of our art, literature and mythology throughout the centuries and how they have influenced various aspects of our lives and have becomes a part of our heritage.

Suitability :—For all groups, MOUNTAINS

ROCKS AND GEMS

A.V. Edu. *Eng.* *11 mins* *552*

This film explains graphically, with animation, the basic principles of the formation of rocks and gems. It describes how to recognise the different types of diamonds by colour, luster, weight, hardness and crystal formations. It shows where to find gems and the many ways in which we use rocks and minerals today.

Suitability :—For students of Geology, ROCKS

HERBARIUM

D.F.I. *Hindi (Col)* *12 mins* *580.742*

The arduous task of collecting various specimens of plant life and preserving them for future scientific study is described in this documentary. The various botanical gardens all over India and the herbaria attached to them undertake round-the-year work in discovering new plants and preserving them by Scientific methods for detailed study.

Suitability :—For the students of Botany and Horticulturists, HERBARIA

MICROSCOPIC FUNGI

N.F.B.C. *Eng. (Col)* *16 mins* *589.1*

A motion picture camera linked to a microscope uncovers a world of fascinating and colourful activity, the world of fungus growth. Highly magnified colour cross section of vegetable substances attacked by the various kinds of fungi give unusually clear illustrations of how these micro-organisms spread and reproduce. Here is an informative, well-presented film showing that microscopic fungi have many useful functions—in leavening bread, maturing wine, and even in the case of penicillin halting diseases. Destructive effects are also shown—pin mould on bread, cankers on trees, diseases of fruit etc.

Suitability :—College and school students of boiogy subjects, FUNGI

ANIMAL FRIENDS

N.F. B.C. *Eng.* *11 mins* *658.57*

A screen magazine film containing three items ;

Roll Call in the Rockies. In Canada's National Park, a wildlife sanctuary census taker on horseback counts noses in an annual animal surveys, **Zoo Comes to Class**: Children of an elementary school in Vancouver get their natural history lessons straight from Stanley Park Zoo. **Its a Dog's life**: The Society for Prevention of Cruelty to animals in Montreal performs all manner of good deeds for people's pets including finding pets for people.

Suitability :—For children of all groups, ZOOLOGICAL GARDENS

SPIDER ENGINEER

D.F.I. *Eng.* *15 mins* *595.44*

The engineering skill and versatility of spider is demonstrated by the discussion of our spiders. The orl-Weaver utilizes several kinds of silk, the Bolas spider makes use of a silk lariat, the diving spider lives under water by constructing its own diving bell and trapdoor spider constructs a camouflaged trap door over her home.

Suitability :—For the students of Zoology of college and schools.

BUTTERFLY MYSTERY

D.F.I. *Eng.* *11 mins* *595.7*

The interesting pattern of butterfly reproduction is graphically explored. Detailed motion picture studies reveal the four main stages of butterfly reproduction and growth, the laying and development of the egg, hatching of larva or caterpillar, formation of pupa and finally the emergence of a beautiful adult butterfly.

Suitability :—For students of Zoology of colleges and schools.

EMERGENCE OF A DRAGONFLY

D.F.I. *Silent (Col)* *6 mins* *595.7*

A clear, close-up view of the change from aquatic nymph to shimmering air-borne adult dragonfly, presented by means of microphotography with time lapse camera.

Suitability :—For students of Zoology

BLIND AS A BAT

D.F.I. *Eng.* *9 mins* *599.4*

The bat is shown to be a useful insect killer, therefore a valuable friend to man. Close-up shows that this mammal is not blind but has well developed eyes. The ability of the bat to fly safely in total darkness is due to its built-in 'radar' system. Controlled laboratory demonstrations explain the unique 'radar' feature of this animal.

Suitability :—For college and sehool students of Zoology

ANGELS IN UNIFORM

D.F.I. *Hindi* *13 mins* *610.695*

It is a film on the personnel of the Armed Forces Medical Services and the services rendered by them. The film also deals with the recruitment and training of doctors and nurses and the medical assistants joining the Armed Forces Medical Services.

Suitability :—For all adult groups, specially meant for the medical and nursing students. NURSING

HUMAN MACHINE

D.F.I. *Eng.* *16 mins* *612*

This film explains various functions of the human body, the flexible framework of bone cartilage and muscles, the chemistry of digestion, lubrication and temperature control. The heart, circulatory and nervous systems are discussed. While the body is compared to a machine, the film points out many points in which the "Human Machine" is far superior to any that man has invented so far.

Suitability :—For the students of medical science.

HEALTH AND HAPPY

D.F.I. *Hindi* *11 mins* *612*

By observing simple rules of hygiene and sanitation, sickness and disease can be banished and this is what this cartoon film meant for audiences in rural areas, attempts to depict. While explaining the two important aspects of rural sanitation—clean and safe drinking water and the use of sanitary latrines, the film also depicts the proper methods of constructing sanitary wells and latrines

Suitability :—For all groups of rural areas HYGIENE

CRIMINALS AT LARGE

D.F.I. *Hindi* *10 mins* *614.3*

It depicts that the adulteration of food should be checked at all costs. Depicting the hazards of food adulteration. The film calls upon the public to cooperate with the authorities in bringing to book the culprits responsible for aduteration of articles meant for human consumption.

Sutability :—For all adult groups, FOOD

SAVE YOUR VILLAGE

D.F.I. *Hindi* *19 mins* *614.84*

A film made for guidance of the rural public, it relates the untold misery caused by village fires and explains the various methods by which these could be prevented,

Suitability :—For rural community, VILLAGE FIRES

BATTLE FOR LIFE

D.F.I. *Hindi* *12 mins* *615.19*

The film relates to the growth of the pharmaceutical industry in India. The age old battle against disease and pain is now being fought with the aid of modern life saving drugs. These include vaccines, anti-toxins, anti-biotics and other nutritional products now being manufactured in India.

Suitability :—For all groups PHARMACEUTICALS

WAR UNDER THE MICROSCOPE

I.C.I. *Eng.* *27 mins* *616.9362*

The film tells the story of the destruction and widespread disease, malaria, and how it can be remedied. The methods employed in malaria-infected areas to combat the mosquitoes are shown and how to eliminate the diseases by means of drugs from quinine. How research was intensified during World War II, resulting in the discovery of 'Paludrine' is also shown in this film.

Suitability :—For Medical Colleges, MALARIA

FOR FULLER PLANT UTILIZATION

D.F.I. *Eng.* *44 mins* *620.1*

Aims to show better practice which helps to get better advantage from men and machines employed at a plant. Describes how this is accomplished by better factory layouts, better housing and other facilities for workmen, and by improved maintenance and materials handling techniques.

Suitabilty :—Technical Colleges, INDUSTRIAL MINISTRATION

POWER FROM NILGIRIS

D.F.I. *Hindi* *10 mins* *621.2*

The film explains the salient features of Kundah project in Madras state, reckoned as a major landmark in the field of power development in South India. The film also depicts the progress so far achieved in this venture, designed to harness the waters of the Kundah Basin, so as to provide electricty for rural areas of the State.

Suitability :—For Engineering colleges and other general groups, DAMS

PRINCIPLES OF TRANSISTORS

D.F.I. *Eng.* *20 mins* *621.384*

The film deals with the electrical properties of semiconductors. It explains how the introduction of arsenic into germanium produces a negative carrier (N type). The contribution of N type and P type germanium, produces transistors with properties similar to those of radio valves. The advantages of transistors over valves are illustrated and examples of their use in electronic equipment are given.

Suitability :—For technical colleges and students of Radio-engineering

LIFE LINE, THE

D.F.I *Hindi* *12 Mins* *625.2*

The railway sytem in India was introduced in 1853. The film shows the development of the Indian Railways during the last century leading to their self-sufficiency in rolling stock and wide-spread net work of rail lines covering a distance of 3,200

kilometres from north to south, and almost an equal distance from east to west. The film also highlights the important role the railways play in the social and economic life of the people.

Suitability : For all groups—RAILWAYS

SYMBOL OF COOPERATION

D.F.I. *Hindi* *11 mins* 627

It is a film on the multipurpose Chambal Valley Development Project,—a symbol of cooperation between the States of Rajasthan and Madhya Pradesh. The project has brought under irrigation lands which were once parched, thus bringing prosperity to the people of the region. The Gandhi Sagar Dam and Power Station, the Rana Pratap Sagar Dam and Kotah Barrage forming a part of the project are shown in the film.

Suitabiity : For all groups. SPECIALLY FOR ENGINEERS

WHERE THE DESERT BLOOMS

D.F.I. *Hindi* *19 mins* 630

The film shows the working of the Central Mechanised Farm set up in the desert areas around Suratgarh in Rajasthan. The Agricultural machinery employed on this 30,000-acre farm was received as a gift from the Government of U.S.S.R. The film shows how the workers at the farm have succeeded in growing large quantities of food in the areas which were once a desert.

Suitability : For farmers and Agricultural Colleges.

ALL FOR ONE

D.F.I. *Hindi* *19 mins* 630.62

The film shows a true story of an awakening in a small hamlet near Poona, cooperative farming is introduced as an experiment to tide over decades of famine, poverty and neglect. It succeeds in bringing material prosperity to the area. From then onwards, the spirit of cooperation spreads to other ventures including industrial and public utility projects.

Suitability : For rural Population and Agriculturists.

ETHIOPIA ADVANCES

U.N. *Eng.* *10 mins* *630.963*

As Ethiopia opens its boundaries to development and progress, the government invites advice and help from Food and Agriculture Organisation of the United Nations.

Suitability : For all groups,

CATTLE WARBLES FLIES :

N.F.B.C. *Eng.* *18 Mins* *636.2*

A film for livestock producers, describing the parasitic habits of cattle warbles, the damage they cause annually to the cattle industry and the control measures being taken in Canada. The film shows in detail the life cycle of cattle warbles tracing the migration of grubs through the animal's bodies and showing the effect of the attack of the fly as well as the damage caused by the grubs. Reference is made to various commercial chemical preparations that have been used successfully in arresting the ravages, of the insect.

Suitability : For Veterinary Colleges.

GOOD EGG :

U. S. GOVT. *Eng.* *6 Mins* *636.5*

The film presents a "magic" show with the magician as a narrator, showing the nutritive value of eggs basic egg dishes and the ways in which eggs are combined with other foods.

Suitability : For all age groups.

SELECTING HENS FOR EGG PRODUCTION

US.D.A. *Eng.* *5 Mins* *636.5*

Explains the principles and importance of selecting, 'producing' among laying hens. Shows desirable and undesirable hands and the best cubbing practices.

Suitability : For Veterinary Colleges and Doctors.

MODERN MILK MARKETING :

MINNU *Eng.* *Colour 20 Mins* *637.5*

Shows how milk is collected by tank truck and brought to the plant, preparation of back milk, the

machines and processes for making powdered and condensed milk, ice-cream, malted milk etc. The shipment of Minnesota packaged milk products to foreign lands is shown and their use there, is illustrated.

Suitability : Veterinary College

NATURE'S NECTAR :

D.F.I. *Eng.* *12 mins* *638.1*

The film furnishes detailed account of the various scientific methods of bee-keeping and collection of honey aptly described as 'Nature's Nectar' in the rural areas.

Suitability : For all groups.

FOOD FOR THOUGHT :

D.F.I. *Hindi* *18 Mins* *641.1*

This film brings to the screen the story behind a silent revolution in dietary habits that took place in Orissa since the introduction of the 'Expanded Nutrition Programme' with the aid of UNICEF in 1960, the film also throws light on the part played by the Mahila Samitis and Youth Groups in organising scientific poultry farming, fish breeding and fruit and vegetable growing to provide a healthy, balanced diet for the rural population

Suitability : For all groups of adults

SILK SCREEN PRINTING PROCESS :

Institute Film *Eng.* *20 Mins* *655.3*

Techniques of Silk Screen Printing are shown in the film. A detailed presentation of the steps involved in making screen in printing. Shows one Colour and Vari Colour work.

Suitability : Teachers Training Institutes, SILK SCREEN.

SILK SCREEN PRINTING :

A.V. Education *Eng.* *11 Mins* *655.3*

This film shows the complete Silk Screen Printing process. Each phase is depicted in succession with intimate camera close ups to illustrate the details of the operation. The work is described in picture and narration so thoroughly and accurately that it is possible to duplicate the process in the classroom after several screening.

Suitability : For Training Colleges & Printers. SILK SCREEN PRINTING

CENTRAL RICE RESEARCH INSTITUTE

D.F.I. *Hindi* *658.57*

The film throws light on the researches carried out at the Central Rice Research Institute at Cuttuck in Orissa to explore improved techniques for increasing rice field in the country.

Suitability : For general groups and farmers RESEARCH

TESTING FOR PROGRESS

D.F.I. *Hindi* *658.57*

The Govt. Test House, Alipur, has helped India's ever expanding industries by testing the durability of raw materials and finished products. The film explains the services being rendered by this organisation to the industries in both public and private sectors and other Govt. departments.

Suitability : For Industrialist and other general groups. RESEARCH.

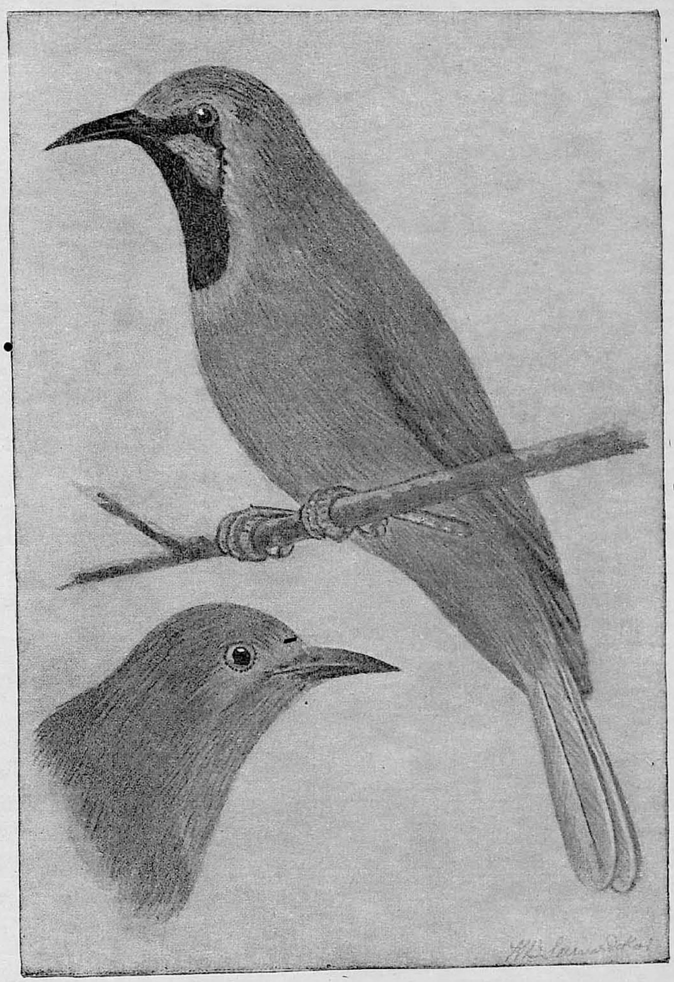
NEW YEAR GIFT

D.F.I. *Hindi* *9 Mins.* *665.53*

This documentary depicts the activities of the first National Refinery at Nunmati near, Gauhati, in Assam. It portrays the planning and building of the refinery and gives the salient features of its construction of a trunk pipeline, the first of its kind in India, to carry oil, from Nahorkatiya to the refinery.

Suitability : For the Engineers and the other groups, PETROLEUM

OUR INDIAN BIRDS



1. Jerdon's Chloropsis (Gold-mantled Chloropsis)

A spruce grass green bird with bright purplish blue moushtachial streaks. The female has pale bluish green chin and throat, and bright greenish blue moushtachial streaks. Pairs or parties on leafy trees occur in the Gangetic Plain and all of peninsular India, They are partial to groves of trees around villages, particularly to the flowers of Silk-cotton, Coral, Patas, etc., feeding on the nectar. Nests between April and August, making a loose shallow cap of tendrils rootlets etc., plastered with cobweb. Eggs are pale creamy or pinkish white with sparse specks blotches and hairlines of blackish, purplish and reddish brown.

WAZIR THE KACZHI :

D.F.I *Hindi* *24 Mins.* *691.4*

This documentary film tells how the Khadi and Village Industries Commission has given impetus to the revival of hand-made paper industry.

Suitability : For rural population. PAPER MAKING & TRADE

SASTHI EENTAIN

D.F.I. *Hindi* *24 Mins* *691.4*

It is an instructional film to show the right method of making cheap bricks. Different processes of selection of brick fields, sample test to ascertain the suitability of brick earth and mixing it with sand as shown in moulding bricks with the help of indigenously manufactured bricks making machines are depicted. It also shows different designs and methods of construction of simple and inexpensive temporary and permanent kilns.

Suitability : For bricks makers and Civil Engineers. BRICKS.

CRAFTSMEN YOUNG AND OLD :

N.F.B.C. *English* *10 Mins.* *731.4*

A screen magazine film containing three items. All the family carves : A film visit to the house workshop of Andre Bourgault, famous French-Canadian Sculptor whose children are taking up his craft. Last of the Totem Makers : Chief Mungo Martin and son David preserve in their carving of totem poles, a unique art of Canada's pacific-coast Indians.

Suitability : For Sculptor. SCULPTURE, TECHNIQUE

MUGHAL GLORY

D.F.I. *Hindi (Col)* *19 Mins.* *731.76*

The film brings to the screen the architectural beauty of the monumeuts of Agra and Fatehpur Sikri. The monuments shown here include the famous Jama Masjid, the Dewan-i-Khas, Queen's Chambers and Panch Mahal from where Akbar listened to the Music of Tansen.

Suitability : For students of ancient history MONUMENTS

ORISSAN ARTS AND CRAFTS :

D.F.I. *Hindi* *10 Mins* *745.2*

The traditional crafts of Orissa are varied and many. The film shows craftsmen working skilfully on brass, fabrics, bellmetal, bamboo, pottery and the famous filigree work of Orissa.

Suitability : For all groups. ARTS AND CRAFTS MOVEMENT.

FILM PROBLEMS :

Indiana Univ. *English* *8 Mins.* *791.443*

Presents a number of problems arising in the filming of person walking into a room to talk to some one. Explains that certain effects can be created in the minds of an audience by the way the sequence is filmed and edited. Uses animation and live action to illustrate examples of variation achieved by changes in movement, and placement, composition of scene, and cutting during action or junction points of action. Concludes with scenes interpretations.

Suitability : For photographers, cameraman and other. PHOTOGRAPHY

CHHATRAPATI SHIVAJI.

Prabhakar Pictures *B/W.* *2½ Hrs.* *792.93*

The films depicts the life history of Chhatrepati Shivaji.

Suitability : For Film appreciation gooup and students of history. FILM APPRECIATION.

AUDIO-VISUAL MATERIALS PRODUCED BY THE NATIONAL INSTITUTE OF AUDIO-VISUAL EDUCATION

(Contd. from Cover ii)

6. FILMSTRIPS

Intructional filmstrips with teaching notes are available on the following topics : (i) Historical Monuments of Delhi. (ii) How to Find Your Bearing (iii) Hazard of Drinking and Smoking. (iv) Musical Instruments. (v) Indus Valley Civilization. (vi) Directed Numbers. (vii) Refrection of Light. (viii) Rocks. (ix) Role of Chemistry in Modern Life.

7. SLIDE BOOKS ON INDIA

Thes are attractive booklets, made-out of plastic material, with some pages, each page having six transparent packets designed to hold the slides. One unique feature of these books is the way in which the slides are kept for inspection, without having to soil them with finger marks. Each book cost Rs. 25/-. Subjects Covered :—1. Kulu the Valley of Gods. 2. City of Delhi. 3. Village Life.

8. OUR INDIA—A STUDY KIT

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